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COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

JANUARY 1948

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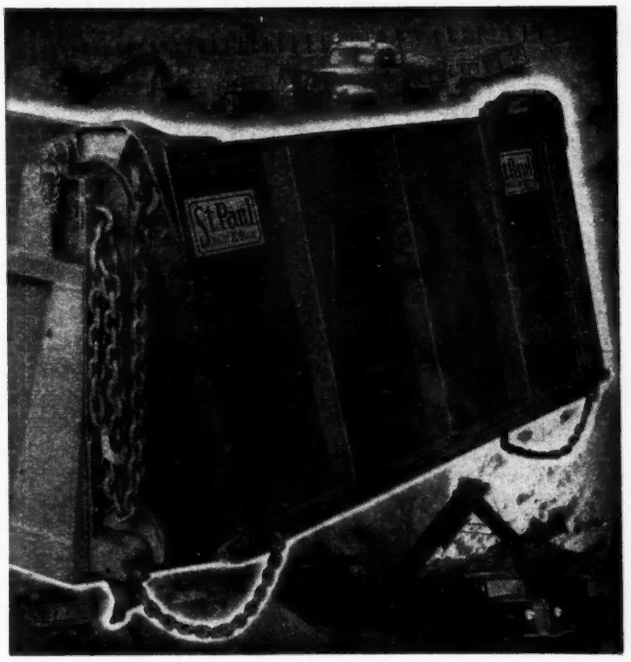

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CCJ READER'S DIGEST

DO YOU KNOW THE ANSWERS?

What are primary advantages of masking stencils in truck painting?..P. 40

Can you name six basic reasons for repeal of excise taxes?.....P. 57

What's a good practical solution for overheating brake drums?.....P. 64

CHECK YOUR KNOWLEDGE . .

What is the advantage of separating truck and passenger car sales?..P. 67

What's the latest forcast on diesel fuel and gasoline supply? .....P. 75

The new Fords are out. Can you name the important new features?...P. 76

Anti-Detonant Injection

by A. T. COLWELL, Pres., Thompson Vita-Meter Corp.

IN this highly important and timely article Mr. Colwell discusses the economic and engineering aspects of alcohol-water-lead injection using the newly perfected Thompson Vita-Meter, in connection with high-burning-quality straight run gasolines. It points out the fact that most engines require high octane gasolines only under peak or near peak power conditions. Now this octane requirement may be obtained automatically only when needed. Meanwhile the higher-burning quality of certain low octane gasolines may be utilized to effect substantial savings in maintenance cost. The article cites several examples of actual savings in fleet operations and makes the claim that fleetmen may expect one or more of these advantages from the combination of anti-detonant injection and high-burning-quality gasoline: 1. Substantial reduction of sludge. 2. Increased valve life. 3. Increased spark plug life. 4. Lower oil consumption due to less oil ring plugging. 5. Less engine wear. 6. Less frequent tear down for oil system cleaning. 7. More power because of less intake manifold and combustion chamber deposits. 8. More power due to maintaining optimum spark setting allowed by lack of octane requirement increase. 9. More gasoline mileage in winter because of the low end point of the average straight-run gasoline. 10. An increase in octane numbers up to 30 points.

The operation of the Vita-Meter unit itself is also thoroughly described and there is a considerable discussion of the subject from the refiner's point of view so that fleetmen may understand the problems involved. See page 46.

Giant Shop

CONSOLIDATED FREIGHTWAYS has installed a new service line and coordinated shop system for the maintenance of the several hundred vehicles, based at company headquarters in Portland. The new layout is in addition to huge existing shops for the building and rebuilding of the company's Freightliner diesel trucks and trailers. It features six new pits, each 60 ft. long for routine service and lubrication on a production line basis. These pits are well heated and well lighted, interconnected by underfloor passages and equipped with everything the mechanic or lube man may need. Lubricants are pumped in from underground storage tanks and used oils are pumped out to disposal tanks also underground.

In addition the company has completely revamped the service floor arrangement with separate bays for engine, transmission, rear-end and front-end service and repairs as well as minor trailer repairs. Adjacent to these bays is the completely-equipped and highly departmentalized overhaul shop. There are separate disassembly and cleaning rooms as well as a soundproof building for engine run-in. All are interconnected with an overhead monorail system and two bridge-crane installations. See page 34.

The Conference Corner

THIS NEW department has stemmed out of the numerous requests from fleetmen asking for THE answer to certain technical questions. Perturbed at the differences in engineering opinion concerning the removal of cylinder glaze, operators demanded the facts. Here they are, as provided by engineers.

Shall cylinder glaze be removed? Many piston ring manufacturers think so, yet they are careful to stipulate that the operation should not go too deep, that the walls to finished properly and that the work be cleaned carefully before assembly. If these precautions are not observed, more harm than good is done by breaking cylinder glaze. One manufacturer insists that certain type rings do not require this operation, while others report that such factors as type of cylinder walls must be taken into consideration.

This is the first of a series of questions posed by fleetmen. Others are in the hands of experts now and will be developed in the Conference Corner in following issues. See page 38.

Service Schools for Fleetmen

EIGHTEEN companies are conducting service training schools, organized to train mechanics in nearly every phase of vehicle maintenance. Many other organizations provide training facilities in the nature of bulletins, manuals, traveling technicians and meetings with fleet operators.

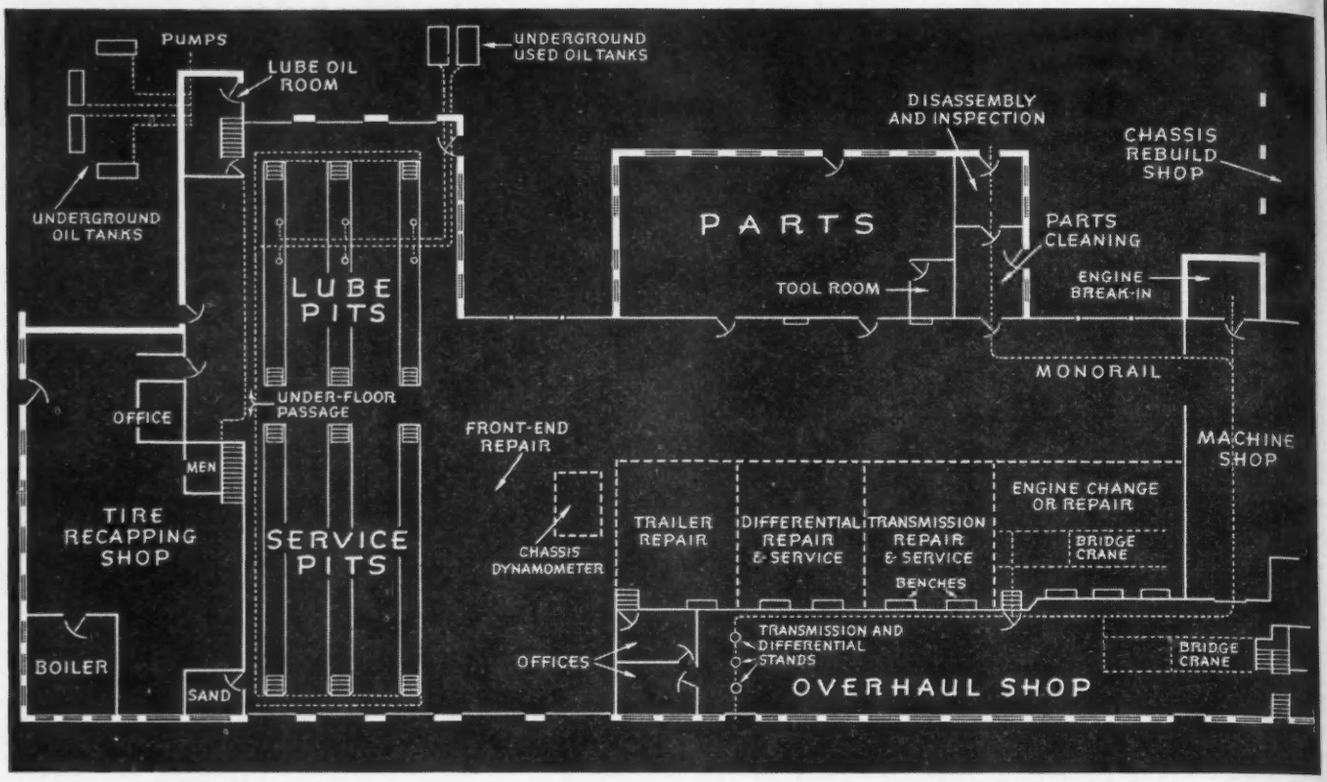
In this article the location of existing schools, length of instruction, technique of presentation as well as a brief review of the schedule is brought to the reader with the thought that he will want to avail himself of this valuable instruction. Complete addresses are given so that detailed information may be obtained. See page 58.

Fleets Curb Troublesome Sludge

THE majority of the nation's best fleets are not burdened with troublesome sludge problems. This statement is based on information supplied by COMMERCIAL CAR JOURNAL's Board of Experts, in connection with a survey of their engine lubrication practices.

Of 222 fleets reporting, 23.4 per cent are currently troubled with sludge, 58.6 per cent said that they used to be troubled with sludge but not now, and 18 per cent said that they never were troubled with sludge.

Of all the information supplied by the Board of Experts, probably the most interesting and immediately useful—especially to fleets now troubled with sludge—is that supplied by the fleet operators who were burdened with troublesome sludge in the past but who corrected or controlled the conditions responsible to a degree where it no longer causes any serious maintenance difficulties. The methods mentioned have been compiled according to vocational groups. See page 49.



Layout plan shows Consolidated's new service building at left with service and lubrication pits arranged for production-line service. Average time on both is 1 hr., 15 min. At right is revised service floor showing areas designated for various functions. Off plan are body and chassis shops

GIANT SHOP

Features Six 60-foot Pits

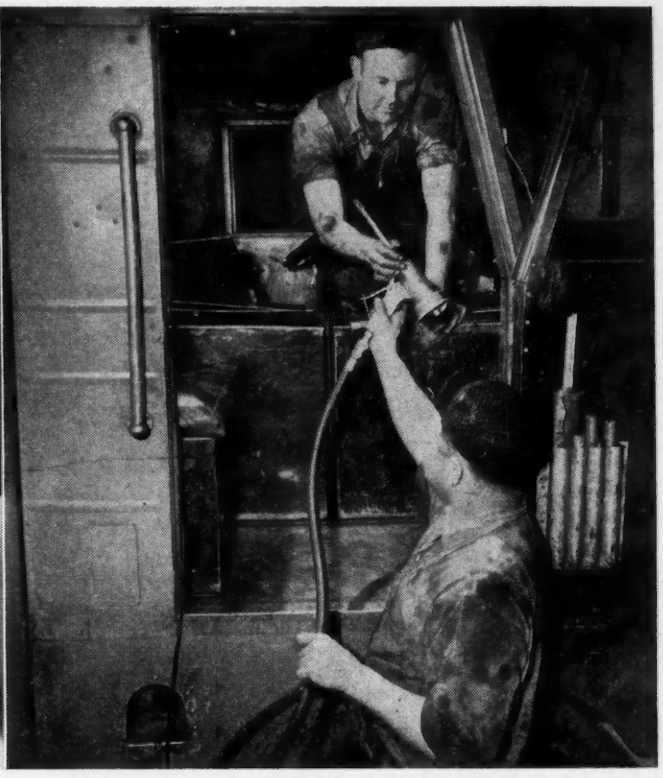
New facilities at Consolidated Freightways' Portland shop permit production line routine and lubrication services and feature coordinated unit overhaul procedures

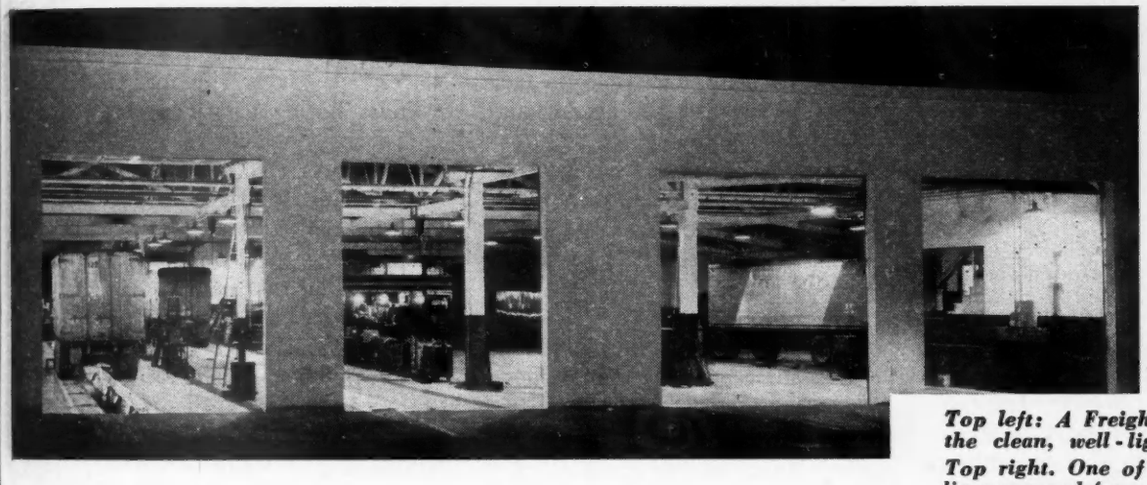
REPRESENTING an investment of over $200,000, Consolidated Freightways has installed a new service line and coordinated shop system for the maintenance of the several hundred vehicles that are based at company headquarters in Portland.

E. B. Ogden, Superintendent of Shops, stated that the new system, which features production line repair and lubrication services, has been planned to enable the company to render faster, more dependable service to shippers, and that it is saving approximately 30 per cent in maintenance time.

The huge shops cover more than three city blocks and are equipped not only for every phase of truck and trailer maintenance, but for building the units as well. The company's big "Freightliner" trucks, all diesel powered and most of them six-wheelers pulling three axle full trailers are well known in the Northwest region. Aluminum has been used for a long time in trailer frames and truck and trailer bodies; now it is being used in many structural parts as well.

But for the purpose of this article we shall be concerned primarily with





Top left: A Freightliner over one of the clean, well-lighted service pits. Top right. One of several engine oil lines pumped from underground tanks Above. Entrances to new service building lead directly to the service pits

the new service building which forms the left section of the shop layout plan (above left) and with the revised service and overhaul area at the right of the plan. Not shown, but still further to the right are buildings for machine shop, body shop, metal and wood working shops, and chassis and trailer assembly.

To Service Pits First

TRUCKS and trailers inbound from long over-the-road hauls are invariably routed to the new service building first (see photo directly above). This building is 60 ft. wide and 160 ft. long and is fitted with three pairs of parallel pits each 60 ft. long (total for each pair, 120 ft.) and 42 in. deep.

Under this new system workmen work in comparative comfort for they do not have to climb under the vehicle and work on their backs. Instead they stand in the pits which are floodlighted, and heated by means of hot water lines imbedded in the floor. To reach the pits the men go down a short stairway to an underground passage which connects with all the pits. There is plenty of room for tools and equipment in the passageways connecting the pits. It is seldom necessary for the men working in the service pits to come to upper floor level as almost all necessary tools are provided at pit level.

The trucks and trailers pass over the service pits first. Here driver complaints and reports of needed repairs are taken care of, and the necessity for further maintenance is diagnosed and prescribed. At the same time scheduled units are given a preventive maintenance service which is pre-determined on a mileage basis.

Complete outline of preventive maintenance schedule is on back of each job ticket. Each mechanic is required to sign his initial in space pro-

(TURN TO NEXT PAGE, PLEASE)

GIANT SHOP

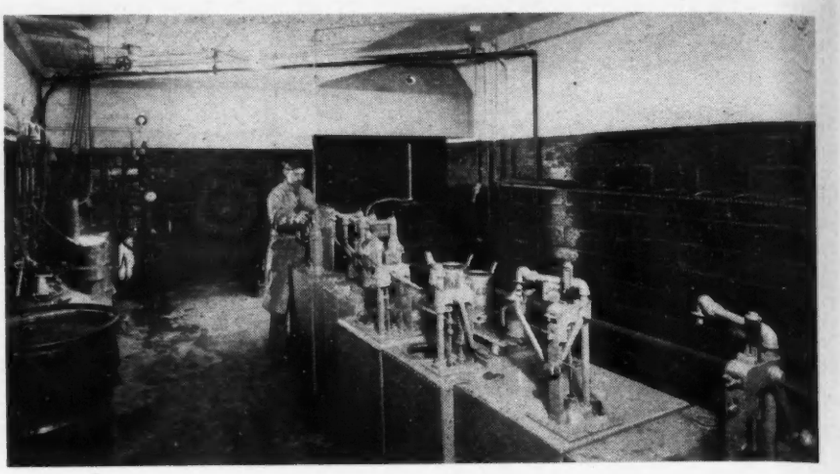
(Continued from page 35)

vided. By this procedure there is practically no chance for overlooking any item of service.

When this preliminary step has been completed, the vehicles move to the second series of pits which are equipped for thorough lubrication.

Grease and oil are pumped under pressure from bulk containers underground and in the adjoining lubrication room (see photo, at right). Hot water lines along side the lube lines assure year-round uniformity of viscosity. Motor oil line is metered. Drain pipes are provided to carry motor oil to a reclaiming tank and waste transmission and differential lubricants to a separate disposal tank.

According to Mr. Ogden, the average time that it takes a truck and trailer to complete these operations is 1 hour 15 minutes and he asserts that they turn out an average of one truck and trailer from this building every 25 to 30 minutes during the working day.



Lubrication room houses bulk containers for special lubes and pumps

Then To Overhaul Departments

IN another section of the shop, called the Service Floor, transmissions, differentials, engines and other units are removed when they have accumulated certain mileages, or when service line diagnosis determines need for replacement due to wear or failure. All units are interchangeable and the unit replacement system, part of the preventive maintenance program, reduces road failures and resultant schedule delays, and lessens tie-up time at shops. This section, 75 ft. wide by 140 ft. in length, has designated areas for front end repairs, trailer repairs, transmission and rear end repairs and engine overhauls and changes. In the engine overhaul area is a two-ton bridge crane (see photo, opposite page) used for moving engines and various other heavy equipment from place to place. When the engines are removed from the trucks, they are carried to a disassembly room where they are taken apart and thoroughly cleaned.

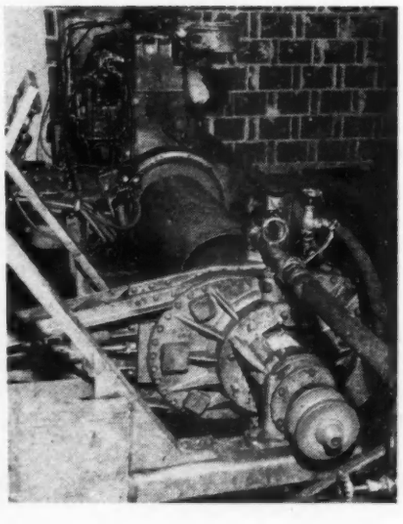
Pistons, connecting rods, crankshafts, engine blocks and cylinder heads are Magnafluxed in an adjoining room, after which the whole assembly is routed to the engine overhaul shop.

It is planned to have eight spare engines on hand at all times to take care of routine replacements and emergencies.

After units such as transmissions, differentials, air compressors, etc., needing overhaul are removed, they are sent to the disassembly room and thence to cleaning room and finally to the unit overhaul shop.

The unit overhaul shop is located in an area adjacent to the service floor area and is equipped with an electric mono-rail crane that extends the full length. Immediately upon entering unit overhaul area is a section reserved for engine assembly. The second space is used for reconditioning cylinders, connecting rods, pistons, valves, etc. It is equipped with a cylinder boring bar and shell bearing boring machine as well as a grinder for reconditioning the large end of connecting rods. All necessary precision tools for these various operations are located in specially designed cabinets in handy location to each machine.

Engine break-in stand has water turbine on which engines are revved up to 1700 r.p.m. Room is sound-proofed



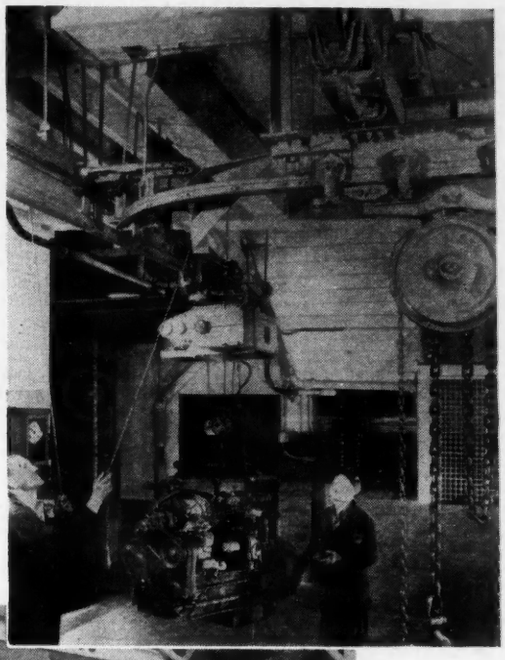
In the third and center area, fuel pumps, injectors, and rocker arms are reconditioned. This section is equipped with a fuel pump test stand and an injector testing machine. The fourth area is devoted to the rebuilding and testing of starters, generators, and all electrical apparatus. The fifth section at the extreme left side of the building is used for reconditioning transmissions and differentials. It is equipped with a power-operated press for pressing bearings, bushings, ring gears, rivets and various parts.

All sections have cabinets for keeping special tools necessary for various operations handy to the work and to keep tools in order.

Special Break-In Room

Another interesting operation is the break-in room for new and rebuilt diesel engines. (See photo at left.) Here the engines are seasoned by means of a water turbine which puts

This is main service floor of Portland shop. Overhaul shops are at left, parts department at right and service lines in far background



Right. Two-ton electric crane carries engines and other component parts between vehicles and overhaul shops

a load against the power of the engines so they can be broken in under controlled conditions. The break-in room is enclose din a soundproof hollow tile building adjacent to the machine shop. The motors are usually run at 1100 r.p.m. under ¼ load for about 12 hours and under 1/3 load for from 6 to 8 hours and full load for one hour before being released to be installed in a truck.

The company reports that this operation has been very satisfactory as it makes it possible to break in a rebuilt engine under observation in their own plant instead of placing it in operation out on the highways where unfavorable conditions may develop at a time when they cannot be adjusted by their experts.

This reasoning is further carried out by the installation of a chassis dynamometer which, of course, can test the entire power train under assimilated road conditions.

This new shop system is phase two of a two-phase program by Consolidated to improve system-wide operations with specific improvements of shipping conditions in Portland. A new dock, called the "merry-go-round" dock was phase one.

The dock is so called because of a continuous conveyor on which are hooked 4-wheel flat trucks, on which the freight is loaded out of the city pickup trucks. The flat trucks are then hooked to the conveyor chain and are taken to proper area for loading, at which point they are taken

(TURN TO PAGE 140, PLEASE)

Above. A six-wheeler on double-roller chassis dynamometer. Device largely eliminates final road test

Below. General view of unit overhaul shop. Note monorail along entire length, bridge crane at upper left

Experts Answer Fleetmen

Many manufacturers' recommended maintenance procedures appear to be controversial in nature.

Believing that fleetmen will be better guided in making their own decisions knowing the pros and cons of some of these issues, CCJ will feature such problems in this department, "The Conference Corner." Here the factory maintenance experts will be given opportunity to present their views for the benefit of the fleet shop.

If you have a similar problem which you would like to have discussed by engineers, let us know and we will arrange a huddle of experts in The Conference Corner.

Next month technicians will answer a fleetman on the question: Do engine governors cut peak horsepower and operating efficiency?

The Conference

SUBJECT: Should Cylinder Glaze Overhauling or Re-Ringing

WE HAVE been asked—"Is removal of cylinder glaze recommended when overhauling or re-ringing engines?" Realizing that the subject is controversial, and that many factors must be taken into consideration before a recommendation is given, COMMERCIAL CAR JOURNAL has enlisted the aid of factory experts to provide answers to this question. Below are recommendations from ring manufacturers with regard to this practice:

Depends Upon Proper Cleaning

by
Paul S. Lane
Director of Research
Muskegon Piston Ring Co.

"On engines in which replacement service rings are to be installed, it is our opinion that cylinder glaze should be removed—providing thorough steps are taken to clean the engine after honing. The block should be thoroughly cleaned with gasoline, followed by a soap and water washing, so that all traces of abrasive material are removed from the bore surfaces, bearing areas and valve assembly. In our opinion the success of re-honing or glaze removal very often hinges on proper cleaning after the honing operation."

Depends Upon Type of Ring

by
E. M. Jacoby
Sealed Power Corp.

"It is true that some manufacturers recommend the glaze be removed as a necessary step in reducing oil consumption, while others state that the glaze should not be removed from the cylinder walls. Both opinions could be right, depending upon the type of ring furnished by the manufacturer.

"Our engineers recommend leaving the glaze on the cylinder wall because our sets contain what is known as 'quick seating' rings, and the removal of glaze is not necessary. Furthermore, more often than not, the cylinder walls are not cleaned as they should be after the glaze breaking operation, and as a result the fine particles left on the cylinder wall wear the rings prematurely. Of course, if a manufacturer includes in his sets rings that are not of the quick seating type, it is absolutely necessary that the glaze be removed.

"It has been our experience that more harm than good is come by the use of a hone in cylinder bores before re-ringing an engine. The reason for this is that the average repair shop just doesn't take time to remove the abrasive left in the engine from honing. As a result, the mating-in period of the rings to the bore become a wearing-out period.

"Modern rings are coated with oxides, phosphates, tin or some such coating which resists scuffing during the mating-in period, and scuffing is no longer a major problem.

"Cylinder wall conditions should be corrected for rings to function properly, but the cylinder bores should be cleaned thoroughly with soap and water after honing. We also recommend the use of crocus cloth wrapped around the hone to remove the sharpness and fragmented material from the hone surface after honing."

Break Glaze for Better Seat

by
H. P. Phillips
Chief Engineer
Hastings Mfg. Co.

"We recommend the removal or breaking of the glaze when an engine is re-rung, for we have found from our many years of experience in this field that it is so much easier for the new rings to seat if the glaze is slightly removed and the smooth surface slightly scratched up by the glaze removing device.

"We have found that the extra life that might be given piston rings because of starting on a smooth, supposedly hard surface is negligible, whereas the chances of the rings failing to do their job if operated on the smooth glaze surface is one that is too great to take. Rings can be heavily loaded so they they will seat themselves even on a glazed surface, but we believe there are many objections to this initial stiffness."

Rings Seat More Quickly

by
Lee Doty
Chief Engineer
Koppers Co., Inc.

"We recommend that the glaze on the cylinder walls be removed when installing new rings for the simple reason that, if the walls are highly polished, the rings do not seat quickly enough, resulting in blowby and oil consumption which can very definitely shorten the life of the job. We know that there are many cases where rings are installed in cylinders without removing the glaze, but we feel that the removal of this glaze is insurance against difficulty."

Corner

be Removed When an Engine?

Verdict of Conferees

Most piston ring manufacturers agree that cylinder glaze should be removed in order to obtain the best seat. They warn, however, that the engine must be cleaned thoroughly with gasoline, soap and water after cylinder reconditioning. One manufacturer recommends leaving the glaze with the use of "quick seating" rings. It is suggested that sometimes more harm than good is done when honing cylinders without cleaning them properly.

Glaze Removal Improves Seating

by
W. G. Myers
Ramsey Corp.

"Our experience is very different along these lines. Glaze or smooth finish is wonderful if the finish has also been acquired by the piston rings themselves, but if the glaze is not removed from the cylinder walls when the rings are changed, then you are not going to get the right kind of seat.

"In our research we have found very definitely that the removal of glaze and insertion of an exact duplicate set of piston rings will whip oil pumping without any other changes in the engine assembly."

Depends Upon Cylinder Walls

by
J. C. Bancroft
Perfect Circle Corp.

"If new piston rings are installed in engines with hard steel sleeves or hardened cast iron sleeves, the cylinder surface should be broken with a spring-loaded surface hone or some other satisfactory type of "glaze breaker."

Some initial wear of new piston rings or the cylinder walls —or both—is essential if the rings are to mate with the cylinder walls and do a satisfactory job of controlling oil and sealing against blow-by. If the cylinder walls are the smooth surfaces of hard steel or hardened cast iron, the new rings may "skate" over the surface, no wear will take place, the rings will not seat, and high oil consumption and blow-by will result. Honing the hard cylinders roughens the surface sufficiently to allow the rings and cylinders to wear enough to properly mate.

If the new rings are to be installed in engines with ordinary cast iron cylinder walls, honing is not necessary to "break the glaze"—unless the cylinder walls are wavy or scuffed.

The "glaze" found on cylinders with considerable service is an excellent anti-scuff substance. Also, with honing omitted, the danger of abrasive material in the engine is eliminated.

New rings will seat quickly on cylinders of this type if the proper break-in procedure is performed following the overhaul. The proper break-in procedure provides sufficient loading on the rings to permit the slight wear necessary for the mating of the rings and cylinder walls."

Problem is Being Studied

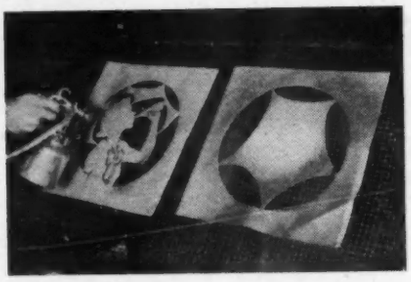
by
W. A. Kirkpatrick
Wilkening Mfg. Co.

"Concerning the removal of cylinder glaze and cylinder preparation in general, we prefer to withhold comment until the piston ring industry Engineering Committee has completed its recommended cylinder refinishing procedure. The Committee hopes to develop a recommended cylinder refinishing procedure which will represent the combined engineering experience of the entire piston ring industry."

Use Glaze Buster

by
E. F. Eiseman
Burd Piston Ring Co.

"In regard to glaze removal, we have found that by use of a glaze removing tool we can increase the performance of a vehicle considerably. The main function of this glaze remover is to remove varnish and to roughen slightly the cylinder wall so that the piston ring will seat more rapidly. We have not had a complaint where this tool has been used on both trucks and passenger cars."



1 (above). Stencils, on coarse screen, are sprayed with a special adhesive. Circle stencil is used first to produce desired solid background color

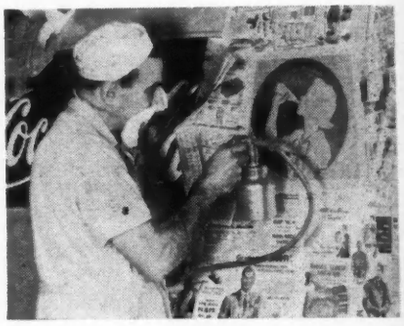
2 (right). Design stencil is put in place over circle and rubbed smooth

Stencils Speed Truck Painting

by ***LEN WESTRATE***
CCJ Detroit News Editor

Detroit Coca-Cola fleet saves 50 to 75 per cent of hand-lettering cost by using paper stencils

3. Next, "ties" are carefully cut out without digging background surface



4. Newspapers are taped on and background resprayed to form silhouette

5. (below). Meanwhile product name has been sprayed on using similar type of stencil. "Coca-cola" is white, silhouette maroon on bright yellow background

PROBABLY no other company in America believes more wholeheartedly in advertising than the Coca-Cola Co. From its inception, it has overlooked no bets in getting the name of its product before the public from magazines and billboards showing apple-cheeked, wholesome, healthy, and thirsty youngsters at the soda fountain to the characteristic red and white sign in front of the most remote crossroads store. And one of the most effective means of keeping the product hitting the American vision has been the "mobile signboard" —hundreds of trucks in the various fleets maintained by the numerous bottling units around the country.

The Coca-Cola Bottling Co., at Detroit, maintains a normal fleet of about 170 trucks, and keeping them washed, painted, and attractively tricked out with bold lettering and eye-stopper designs represents considerable work and no little expense. Yet the company feels that the bene-

(TURN TO PAGE 118, PLEASE)

The OVERLOAD

Salesman-Drivers Sell Too Much Public Ill Will

A COUPLE of issues back we referred to Zoombies, Paul Reveres, Shysters and Sniffers as the bad boy drivers of over-the-road vehicles, the drivers that generate public ill-will toward trucks. But "leave us face it," for brazen, day-in-and-day-out flouting of traffic rules that irritate the general public, local truck drivers of the type known as driver-salesmen deserve a prominent place in the industry's rogue's gallery of ill-will breeders.

* * *

In too many fleet establishments driver-salesmen are the pampered pets of the sales department. They can do no harm to their vehicles, to the fleet's safety record and to the company's relations with the general public that won't be excused if they have a good selling record. In many such fleets selling takes precedence over driving to such an extent that the men are not called driver-salesmen but salesman-drivers.

* * *

It is a distinction that is not lost on the maintenance and safety departments. With the result that these departments gear their activities to sales department policies. They do not do the jobs they are capable of doing simply because their authority does not correspond to their responsibilities. But that's another problem. Right now we are discussing the problem of public relations.

* * *

The pampered pets known as salesman-drivers seem to think that proper parking when they are making deliveries is any placement of the vehicle that pleases them, and let the motoring public and pedestrians fend for themselves. Here are some of the parking offenses of which they are glaringly guilty every day of the week:

Double parking at corners.

Parking too close to a corner.

Parking directly across a corner.

Parking at a distance from a curb.

Parking the front end into the curb and letting the rear end jut out into traffic.

Parking and double parking on the wrong side of the street.

by GEORGE T. HOOK
Editor

There are times, of course, when double parking is unavoidable. But too often it is the resort of a salesman-driver who thinks only of saving himself a few steps. In fact most of his traffic violations stem from this source. The other cause is haste. Most of the public ill-will is bred at corners where retail shops seem to gravitate. There is absolutely no excuse for parking directly across a corner and thus blotting out the view of other drivers. Nor is there any excuse for double-parking near the corner. If no parking space is available near the corner the place for the double park is far enough away from the corner not to set up a small-sized traffic bottleneck.

* * *

This is a job for management. Salesman-drivers must be converted to the idea that the public streets are not a company-owned parking lot on which they are free to do as they please. If they are, all truck operators will benefit in terms of improved public relations.

New Year's Greeting: Two Sensational News Items

IF this were a Gabriel Heater radio script it would lead off "There is sensational news tonight," as indeed there is. First, there is Ford's announcement of a new truck line going up to 21,500 gvw. Second, there is the Thompson Products' announcement of an anti-detonant injection system which, when used with straight-run gasoline of high burning quality, holds out remarkable economic benefits to fleet operators. Both announcements are dealt with in detail elsewhere in this issue.

* * *

At the moment of writing Ford had not announced its prices but it is a certainty that they will be competitive. The real competition, however, will not be in the price. It will be in the number of heavy-duty models that Ford proposes to build in 1948. Our understanding is that 26,000 units are projected. Ford's 26,000 units will make available about 50 per cent more such trucks than were produced in 1947. The market may absorb these in 1948 without disturbing competitors unduely. But this additional production should accelerate a buyer's market, with all that this connotes to competition, in the lower gvw bracket of the heavy-duty field. The upper gvw bracket already is in that status.

* * *

As for the developments in anti-detonant injection, they are sensational not only in the immediate and long-range benefits to trucks fleet operators, but in the opportunity for refiners to speed up the large-scale use of high-compression engines. If engines that require 100-octane gasoline must await orderly and economic transition of refining facilities, it will be many years before they are in mass production and use. Anti-detonant injection appears to offer refiners a method for making the transition with existing facilities and with economy.

* * *

The system of injecting the anti-detonant solution right into the combustion chamber also opens up a new field of research. It makes possible the use of anti-detonants that are soluble in alcohol. Up to now the anti-detonant had to be soluble in gasoline. Currently, the injection system sponsored by Thompson Products uses tetraethyl lead in solution with alcohol and water. But this is just the first step. Research is afoot with other anti-detonants which is said to be very promising.

* * *

This is a good way to begin the New Year: with assurances to fleet operators that many new developments are in store which will help them balance off the constantly rising cost of operation.

← Continued in adjoining column

SHOP HINTS FROM FLEET SHOPS

$25 HINT OF THE MONTH

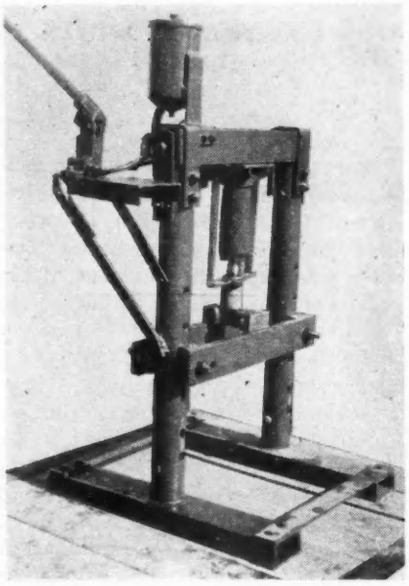
HYDRAULIC PRESS

by E. C. Niemann, Sr. Mechanic
U. S. Dept. Agriculture
London, Ky.

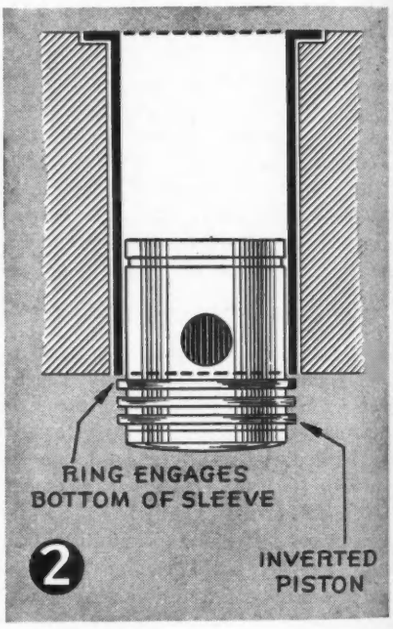
Here is a small hydraulic press I made for our shop. It is made from scrap iron and a hydraulic truck jack. I sawed the pump off the jack and mounted it upside down on a 3 x 3-in. solid crosspiece as shown. The reservoir is a discarded oil filter, with fuel lines for piping hydraulic fluid to the jack.

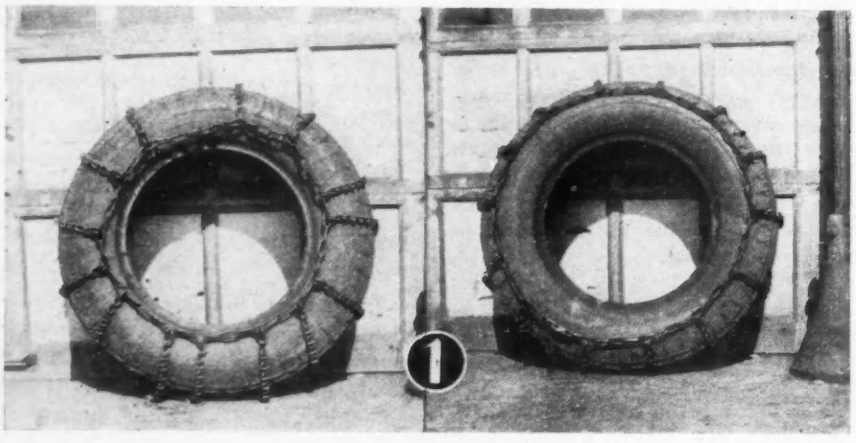
Uprights are made of 3-in. gas pipe, 33 in. in height, welded to a frame 22 x 24 in. Holes ⅝ in. in diameter are drilled 3 in. apart along the frame to accommodate adjustments for various thickness of work. The crosspieces are made from ½-in. plate 3 in. in width.

The pump which has been removed from the jack is set on a frame as shown and connected with air brake tubing to the jack. Screen door springs are used to pull the jack plunger back after it has been extended.



The specifications given can be changed to meet the requirements of the shop. This unit is not intended to take the place of the 60-ton job but will be found useful for small work.





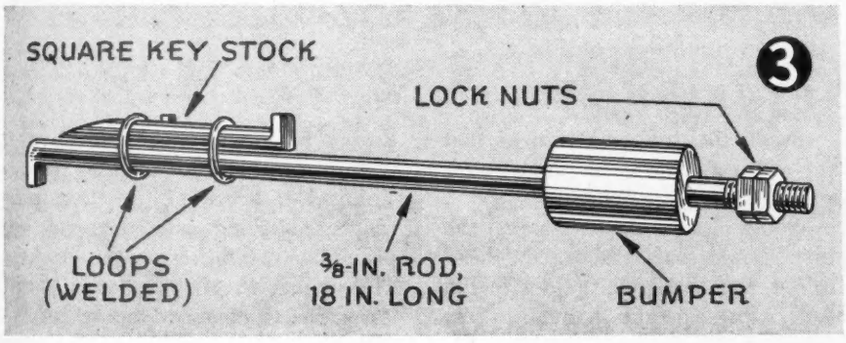
1. Tire Chain Tip

by Preston R. Coleman
Rainey Wood Coke Co.
Norristown, Pa.

For the last few years we have had trouble putting skid chains on dual truck tires because the full size tires were too close when mounted on the older type rims.

Cross bars on skid chains are spaced every three side links apart. We space the crossbars every three links apart on one side and on the other side we space them two and three links apart in alternate order. This

Here are the staff's selections for this month. Is your name among those present? Will it be next time? Remember, men, this is your department — reserved for your pet tips on truck maintenance—or your favorite shop-made tool—or any idea that will save time and money in vehicle service. Don't underestimate your ability to help another reader. Many times we find that a tool or a procedure used as common practice in some shops is new to others. So get a piece of paper and put it down —now, while you are thinking about it. You'll be paid for your trouble. Selected contributions receive $5—AND—each month one is awarded $25 as the Hint of the Month. Shall we reserve a space in this column for you next month?



shortens the chain on the inside so that the chain will not go too far down between the duals.

This procedure will save a lot of time and trouble in winter operation.

2. Sleeve Puller

by I. B. Webb
Baker-Maddox Co., Macon, Ga.

When replacing the sleeve and piston assembly in International tractors with dry sleeve type engines, a good substitute for a puller can be made from one of the old pistons.

Remove the rod and piston pin and the lower oil ring. Insert the piston upside down into the lower end of the block as shown. The skirt of the piston guides it straight.

Using a wooden block and hammer the sleeve can be driven out of the block. If the sleeve is tight, use a hydraulic jack under it. This same method can be used to install new sleeves.

We have found this procedure takes less than half the time required with a screw type puller.

3. Clutch Tool

by Tim Vahle
Iowa Ordnance Plant, Burlington, Iowa

Here is a tool I have made to remove the clutch pilot bearing. I made this from a 3/8-in. carriage bolt by welding a 3/8-in. rod to it so that it was 14 in. long. I filed the bolt down about 1/16th in. for one inch at the head and cut off the other half of the head. The top of the rod was flattened to keep the sliding lock in place. Loops are made out of welding rod and welded to the rod as shown. The lock is a keyway tapered at one end and made to slide along the rod through the loops. A small piece is welded to the lock so that it cannot slip through the loops.

Then a 13/32-in. hole is drilled through a 3-in. piece of 1½-in. cold rolled shafting and is slipped over the rod for a bumper. Two nuts are installed on the rod and the tool is complete.

We have purchased a number of pullers to remove the clutch pilot bearing from the flywheel, but this does a better job.

4. Replacement Rivets

by Clinton B. Baker
State Roads Commission, Easton, Md.

At times it is necessary to replace frame rivets, and bolts used by most shops soon come loose.

To lick this problem we make up a special bolt as shown in the drawing. The shank is tapered from a measure-

(TURN TO NEXT PAGE, PLEASE)

SHOP HINTS . .

(Continued from page 43)

ment corresponding to the hole to a slightly larger diameter so that when driven through the hole, it will wedge and keep itself tight. Threads are cut smaller than the hole so they won't become damaged when driven in.

5. Fifth Wheel Lubrication

by Frank E. Seftchick
Swift & Co., Brooklyn, N. Y.

Lubrication of the 5th wheel on the tractor can be made easy and uncoupling unnecessary by simply drilling and tapping loose holes around the arc as shown and installing regular lubricating nipples.

This applies especially to jobs which are seldom uncoupled and which require time and trouble in getting lubrication to this point.

6. Bushing Driver

by J. H. Delperdang
Sioux Transit Co., Sioux Falls, S. D.

Here is a bushing driver made from an old axle shaft. It will drive as many as seven different size bushings, nearly every size from .615 to 1.395 in.

Dimensions are shown on the drawing. Of course other sizes can be turned out on the lathe as desired.

7. Spring Repair

by T. J. Hourihan
Moulten & Holmes, Boston, Mass.

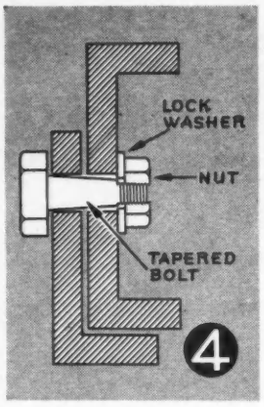
Here is a temporary repair kit for springs. It has been used by us to get a vehicle to the shop with a broken spring, eliminating use of a wrecker.

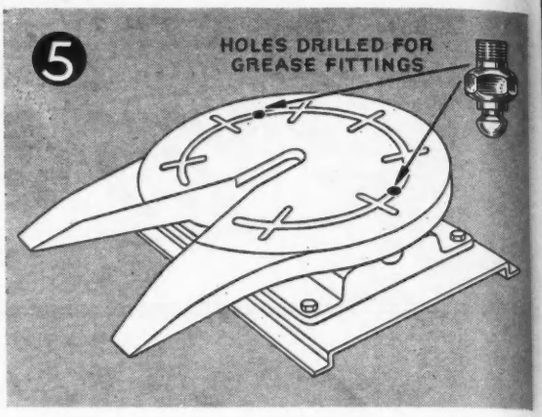
Weld two pieces of scrap stock together as shown and drill two 5/16-in. holes in the ears of the crosspieces and the plate underneath it. Lay the large plate on top of broken leaf, being sure the stock break is in center of the plate. Bolt the cross plate under the bottom of spring as shown.

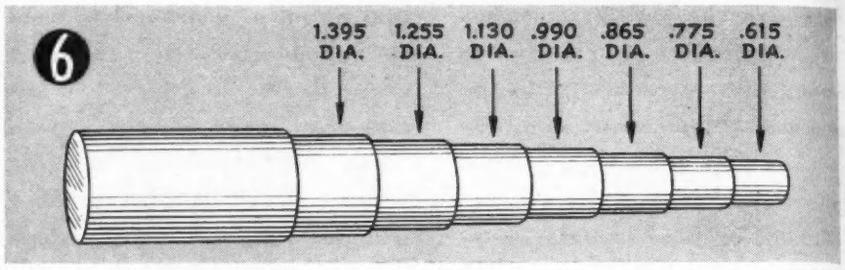
8. Valve Guide Gage

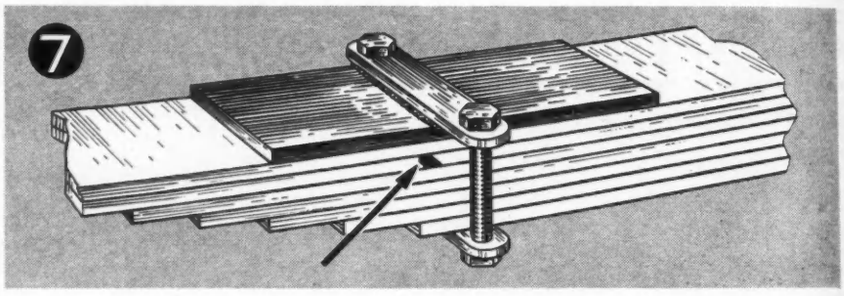
by Arch Brewster
Twin City Lines, Inc., Ft. Smith, Ark.

When installing valve guides in 228, 248 and 270 GMC engines, we use a piece of ¾-in. pipe for a gage.









It speeds the job and insures that they are installed in the proper position in the head.

Cut the pipe to the length that the guide should extend above the head (61/64 in.) Start the guides in the head with a light hammer, just enough to hold in place, until you are ready to push them down with the press. Then place the pipe over the guide and press into the head until flush with top of pipe.

This same gage can be used on the Chevrolet exhaust guide. For the Chevrolet intake guide use a piece of pipe 1 1/16-in. long.

9. Oil Filter Installation

by J. M. Kavanaugh
Hegeman Farms, Ridgewood, N. Y.

Having had a great deal of trouble with ordinary oil filter installations such as the return line being hooked into fuel pump studs or hollow distributor studs, we developed the following as standard shop procedure:

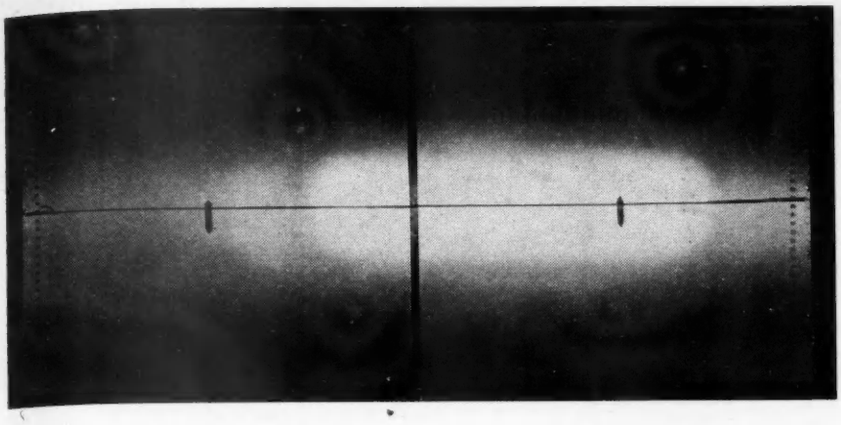
Any time a crank case pan is dropped we braze a ⅜ to ⅛-in. pipe reducer bushing into the pan approximately 6 in. from the bottom. This makes the hookup very short, less liable to clog and needs be disturbed only when removing the crank case for engine work.

10. Valve Tool Tip

by John Brown
Direct-Winters Transport
Toronto, Ontario

I have an idea which has improved our valve grinding stick. We have not had any luck with the suction cup which comes with the valve grinder. It is too hard and does not flex properly.

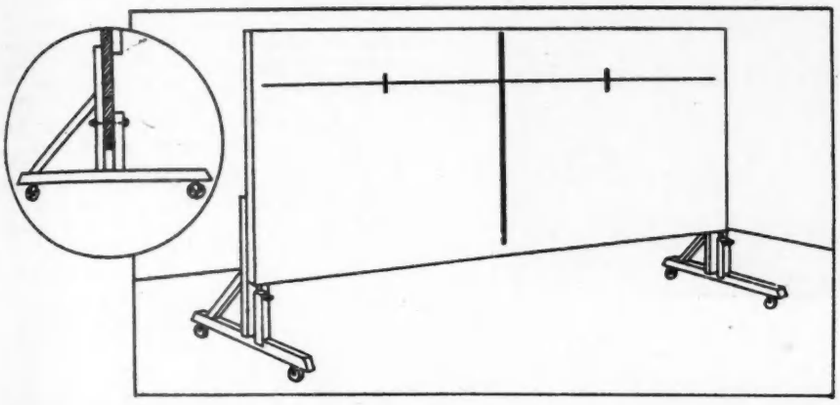
I use old wheel cylinder cups of the size required. Simply puncture a hole in the center and fasten to the stick with a wood screw, using a flat washer under the head.

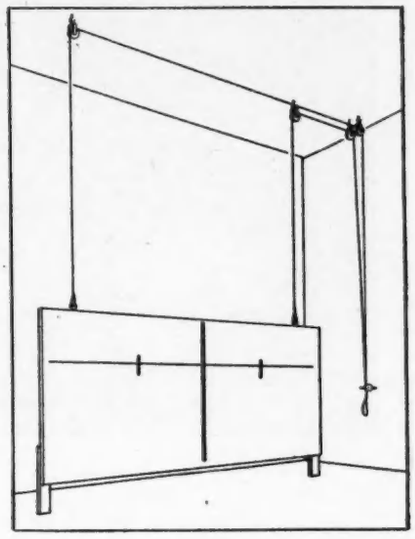


Left. Basic aiming chart with spring-loaded horizontal tape hooked over nails 1 in. apart and equipped with adjustable vertical markers on sides

Below, left. Chart mounted on easily-built frame equipped with casters

Below. Chart suspended from pulleys





How to Construct a Headlamp Aiming Screen

Practical device can be made from several material options at surprisingly low cost

by ***GEORGE E. MEESE***
Illuminating Engineer, Lamp Dept., General Electric Co., Nela Park

SIXTY per cent of the motorists and pedestrians killed last year were killed at night! The fact that after-dark traffic is only one-third as heavy as during daylight hours further emphasizes the tragic penalty of poor seeing conditions. It is of vital importance, therefore, to maintain automotive lighting equipment at peak efficiency.

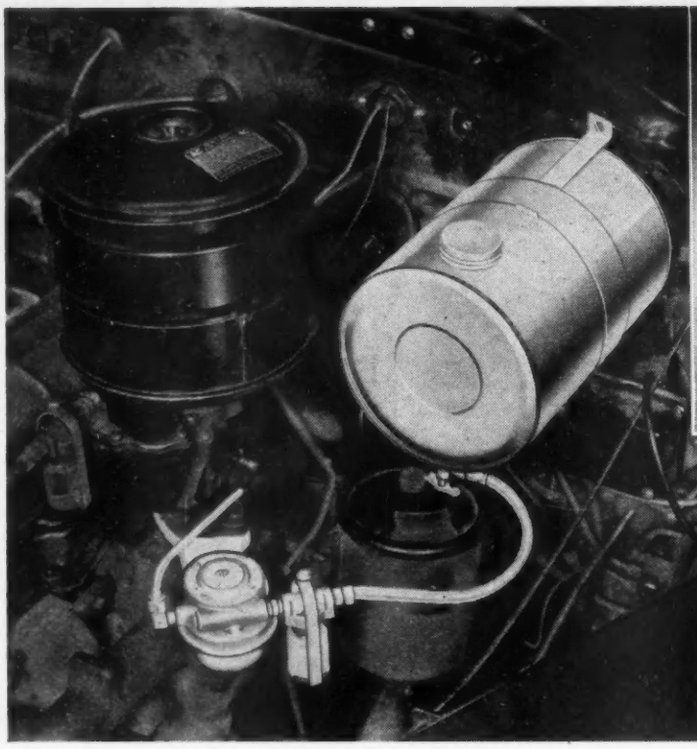
Headlamp aiming equipment is the principal item in establishing this service. Aiming machines are available which do an excellent job and consume a minimum of floor area. But those who feel they cannot justify the investment involved can still inaugurate their safety lighting service by constructing an aiming screen. It can be easily set up in garages having a reasonably level floor area on which a vehicle may stand and a cleared area for projecting the headlamp beam 25 ft. to the screen.

Any smooth vertical white surface, 8 or 10 ft. wide by 3 or 4 ft. high on which the headlamp beams can be

(TURN TO PAGE 113, PLEASE)

A Word on Focusing

The accompanying article deals only with the *construction* of a headlight screen. Proper *use* of such a device was covered thoroughly in a previous article appearing on page 62 of the December, 1946 issue of CCJ. In that article it was pointed out that once the 36-in. true position of the horizontal stripe is established, the stripe should be moved up or down in relation to the center height of the actual lamps being tested and fixed at a point usually 3 in. lower. Similarly the moveable vertical markers should be placed the same distance from the center of the chart as the headlamps are from the center of the vehicle. Aiming then becomes a matter of centering the beam on both the vertical and horizontal markers. Centering of the vehicle is most important and can be accomplished accurately for passenger cars by sighting across center markers on rear window and windshield. In the case of large trucks, it can be done by running a string around the rear wheels to points on the chart spaced equidistant from center and the same width apart as the rear tread, then moving chart so that distances from front of truck to each string are equal.



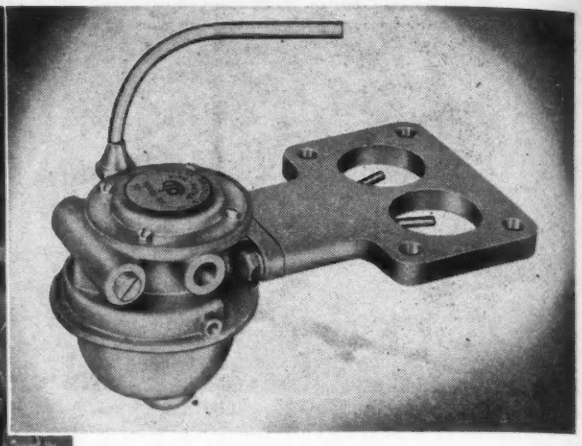
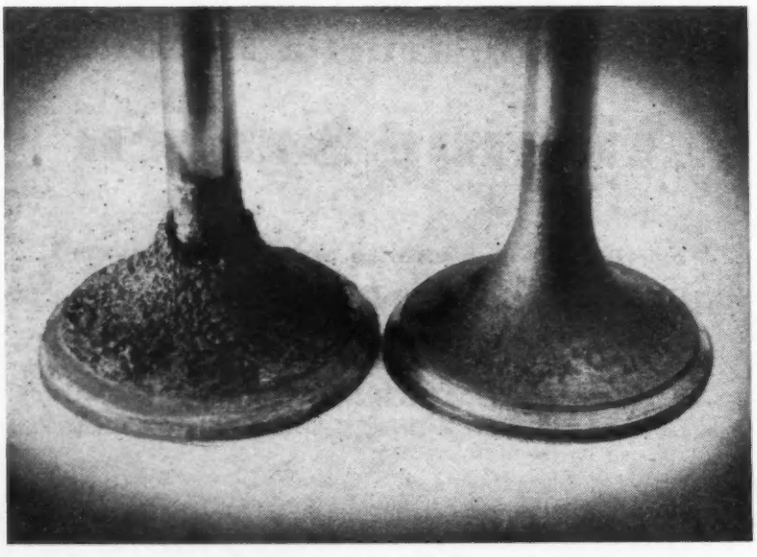


Fig. 1 (above). A Vita-Meter unit for dual carburetor. For cross-section drawings, see Fig. 8, page 100

Fig. 2 (left). Typical Vita-Meter installation with small fluid tank

Fig. 3 (below). Typical intake valve failure (left) in heavy-duty service and valve from identical run using high-burning-quality gasoline

Economics and Engineering



EDITOR'S NOTE: Toward the end of World War II, Thompson Products, Inc., completed the development of a simple device for the automatic injection of anti-detonant solutions into truck engines. The device was described, together with claimed advantages in the December, 1945 issue of CCJ, Page 38. Shortly thereafter a considerable number of the units were installed in commercial vehicle fleets so that actual user experience would be coupled with laboratory tests. The results of these tests together with economic and engineering aspects of the injection process are described for the first time in the accompanying article by Mr. Colwell.

Fleetmen May Expect One or More of These Advantages from Anti-Detonant Injection Using High-Burning-Quality Gasoline

1. **Substantial sludge reduction**
2. **Increased valve life**
3. **Increased spark plug life**
4. **Lower oil consumption due to less oil ring plugging**
5. **Less engine wear**
6. **Less frequent tear-down for oil system cleaning**
7. **More power because of less engine deposits**
8. **More power due to maintaining optimum spark setting allowed by lack of octane requirement increase**
9. **More gasoline mileage in winter because of low end point of the average straight-run gasoline**
10. **An increase in octane number up to 30 points**

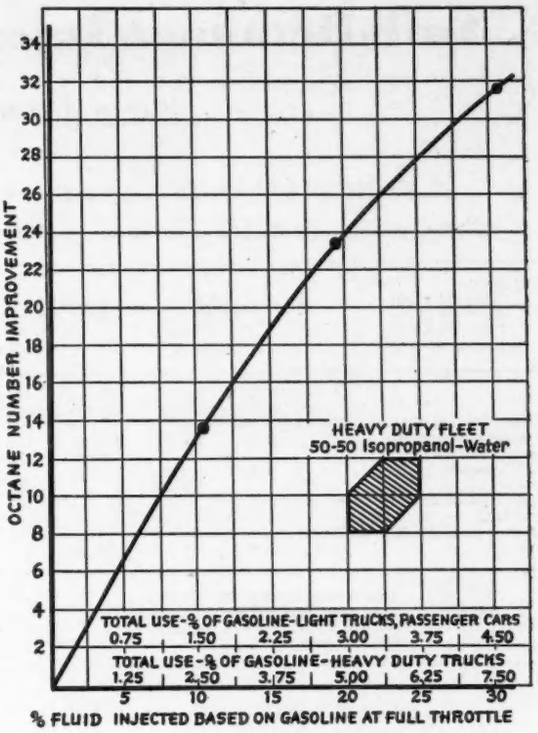
ALL GASOLINE-POWERED vehicles have an anti-knock quality requirement or so-called "octane requirement" based only on full throttle operation. Consequently, by present methods high octane number gasoline is burned all the time the vehicle is running even though a major part of the gasoline used could be much lower in octane number. For example, a vehicle might need over 75 ASTM octane number gasoline at

Octane Improvement with Anti-Detonant Injection

VEHICLE	OCTANE REQUIREMENT	SOLUTION INJECTED (Per Cent of Gasoline at Full Throttle)	OCTANE IMPROVEMENT
Dodge Truck, Model WK '47	82	10.0	17
		20.5	27
		30.8	34
Chevrolet Truck '46	84	11.2	16
		18.6	26
		30.5	30
MC Truck, Model 300 '46	80	11.3	12
		20.0	22
Pontiac Sedan (7.5 Comp. Ratio '42)	85	9.3	11
		20.0	22
		30.5	31
Chevrolet Sedan '46	76	10.5	12
		19.2	20
Ford Truck '47	67	9.5	14
Average	....	10.3	13.7
Average	....	19.7	23.4
Average	....	30.6	31.7

Fig. 4 (above). Actual octane improvement obtained in specified vehicles

Fig. 5 (right). Chart plots averages of results obtained in Fig. 4, above



Aspects of Anti-Detonant Injection

by **A. T. COLWELL**
Vice-president, Thompson Products, Inc., and president, Thompson Vita-Meter Corp.

Average fleet savings up to $100 per vehicle per year are indicated by tests—When, As and If: WHEN high-burning straight-run gas comes in quantity, AS fleets are equipped to take advantage of it, and IF alcohol production can meet anticipated demand

full throttle from 10 to 70 mph. Such a vehicle could run at 40 mph on a level road with only 30 octane number gasoline at no loss in gasoline mileage. At 60 mph, level road, it would need only 45 octane number fuel and at 70 only 55 octane number gasoline. Thus it can be seen that gasoline engines as designed and operated are inherently wasteful of the anti-knock quality of the gasoline used.

This situation provides an opportunity for using anti-detonant solutions only when the engine requires it. Alcohol-water-tetraethyl lead solutions here have been found to be excellent anti-detonants. During the war, alcohol-water solutions were fed to aircraft engines along with gasoline during periods of extremely high output. This supplementary injection prevented detonation and cooled cylinder parts at the high powers used. Alcohol-water injection is still military practice when operating aircraft engines at high outputs. Ground vehicles do not have the superchargers required to get as great an increase in power as aircraft engines do from supplementary injection, but the effective gain in anti-knock quality can be utilized in the same manner as an increase in the octane number of gasoline. Further, the use of tetraethyl lead in the alcohol-water solution greatly reduces the amount of lead used and puts it in only under conditions favoring complete purging.

The Vita-Meter Unit

ALSO during the war, work was finished on a simple device designed to inject anti-detonant solutions into ground vehicle engines. Enough of these units, called "Thompson Vita-Meters" (see Figs. 1 and 2) were put into service to prove that the device was fully automatic and

(TURN TO NEXT PAGE, PLEASE)

. . . Anti-Detonant Injection

(Continued from page 47)

FLEET MAINTENANCE SAVINGS

Fig. 6—Bread Delivery Fleet (Ford V-8 Engine)

Operating Data:

Miles per month	1,400	Miles to engine overhaul	20,000
Miles per year	16,800	Cost of engine overhaul	$150.00
Miles per gallon	4.0 (est.)	Oil is drained every month regardless of mileage.	
Gallons per year	4,200		

	1st yr. 16,800	2nd yr. 33,600	3rd yr. 50,400	4th yr. 67,200	5th yr. 84,000	Added Cost	Saving
Vita-Meter, Tank and Installation	$22.50	.....	.....	.....	.....	$22.50	.....
Cost of anti-detonant solution @ 25¢	26.90	$26.90	$26.90	$26.90	$26.90	134.50	.....
Gasoline (½¢ less per gal.)	.....	21.00	21.00	21.00	21.00	.....	$105.00
Lower Oil Consumption	4.50	4.50	4.50	4.50	4.50	.....	22.50
Overhaul savings	.....	150.00	.....	150.00	.....	.....	300.00
Sparkplugs—Save 3 sets of 8 @ .40 plus labor of $1.50 per set	.....	.....	.....	.....	.....	.....	14.10
Savings on a valve grind @ $25.00 per engine	25.00	.....	25.00	.....	25.00	.....	75.00

Total savings over five year period	$516.60
Total added cost over five year period	157.00
Net savings over five year period	359.60
Net saving per vehicle per year	71.92

Fig. 7—Freight Hauler (Using Dodge T-120 Engine)

Operating Data:

Gross Load	34,000	Cost of major overhaul	$118.72
Miles per year	120,000	Oil Mileage	150 MPQ
Miles per gallon	5.75	Drain each 2,500 mi.	Inc. drains
Gallons per year	20,800	Change filter each 2,500 mi.	
Miles to minor overhaul	40,000-50,000	Crankcase capacity	5 Qts.
Cost of minor overhaul	$52.85	Oil cost per gallon	52½¢
Miles to major overhaul	80,000	Filter socks cost	30¢ each

	1st yr. 120,000	Added Cost	Saving
Cost of Vita-Meter, Tank and Installation (2 yr. write-off)	$15.00	$15.00	.....
Cost of anti-detonant solution @ 35¢	306.00	306.00	.....
Assume 5,000 mile oil drains—30 gal. @ 52½¢	15.75	.....	$15.75
Gasoline (¾¢ less per gallon)	.....	.....	156.00
Save 24 filter socks @ 30¢ each	7.20	.....	7.20
Raise oil mileage to 300 MPQ—100 gal. @ 52½¢	52.50	.....	52.50
Savings on spark plugs—30,000 miles instead of 20,000			
Save 2 sets of 6—12 × 40¢	4.80	.....	4.80
Save 1 minor overhaul @ 52.85	52.85	.....	52.85
Save 2 valve grinds @ 15.00 each	30.00	.....	30.00
Loss of revenue on 2 valve grinds and overhaul	80.00	.....	80.00

Total savings	$399.10
Total added cost	321.00
Net saving per vehicle per year	78.10

needed no more maintenance than an ordinary carburetor, and that the benefits listed above could be obtained by the fleet user.

Corrosion difficulties in the injection system itself have been overcome by the use of the proper inhibitor in the anti-detonant solution. Specifications for materials used were formulated from severe laboratory and service testing program. Through several stages, the device was completely re-designed to facilitate mass production. It is now indicated that production can easily keep pace with the availability of alcohol which remains the most critical factor.

An interchangeable jet and spring in the Vita-Meter unit determine the maximum rate of injection and the manifold pressure at which injection ceases. Each different vehicle needs a prescribed Vita-Meter setting and installation kit. The engineering required for the various applications is well under way and units are now available for most truck models.

Engine Operation

THE function of the Vita-Meter is to inject an alcohol-water base solution of methyl, ethyl, or isopropyl alcohol containing tetraethyl lead

(TURN TO PAGE 100, PLEASE)

Anti-Detonant Injection: Gasoline Refiners' Point of View

1. It is contemplated that many refiners will be in an ideal position to market the high burning-quality gasoline and the anti-detonant fluid.

2. Since many but not all straight-run gasolines actually possess superior burning qualities, it is considered likely that it will be merchandized under a brand name and held to rigid performance specifications. It is also likely that the gasoline will be offered to the fleetman at a price somewhat less than the current price of housebrand gasoline. Under current proposals, however, this price advantage will be offset by the cost of the anti-detonant fluid and the fleetman's savings will come from reduced maintenance costs alone. The figures in the accompanying article are based on this contention.

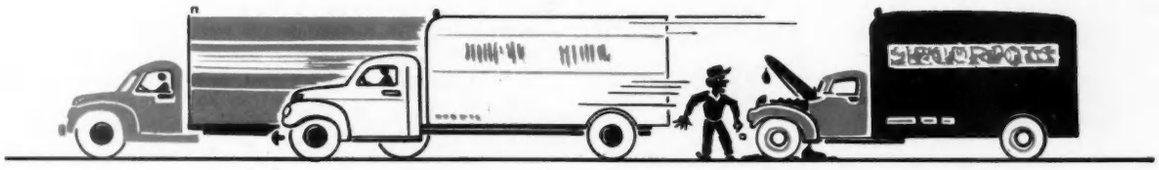
3. It is proposed that the anti-detonant fluid also be offered as a brand name product at prices proportionate to the prevailing cost of alcohol.

4. Production of high burning quality straight-run gasoline offers attractive inducement to the many refiners in that it can be produced at the refinery at less cost and that more gasoline can be obtained from a given amount of crude and refinery capacity if the straight-run product is used as such rather than being reformed for higher octane. Particularly attractive is the good possibility that existing premium gasolines in the neighborhood of 85 octane rating can be stepped up with anti-detonant injection to meet the future needs of high compression engines, requiring 100 octane or better, without the necessity of additional and very costly refinery equipment.

5. At least for the present it is proposed that anti-detonant merchandising efforts be directed toward fleets having their own gasoline storage tanks thus eliminaing the necessity of additional bulk storage facilities which are almost impossible to erect, with the present shortage of steel.

FLEET OPERATORS' EXPERIENCE HANDBOOK

Fleets Report Success in Curbing TROUBLESOME SLUDGE



Survey shows corrective measures include change to different type of lubricant, more frequent attention to lubrication system, and addition or change of certain engine accessories. Reports also show only 23.4% of nation's top fleets burdened with troublesome sludge

Analysis ***by A. W. GREENE,*** *Managing Editor, Commercial Car Journal*

THE MAJORITY OF THE NATION'S BEST FLEETS are not burdened with troublesome sludge problems. This statement is based on information supplied by COMMERCIAL CAR JOURNAL's Board of Experts in connection with a survey of their engine lubrication practices.

Table 1, compiled from information supplied by the Board members, shows that less than one in four fleets reporting indicate that sludge is a troublesome problem now. This table also shows that 58.6 per cent of all fleets reporting had troublesome sludge problems in the past but, because of certain corrective measures employed, these problems either are non-existent or controlled to a degree that they no longer are troublesome. Certain fleets, 18 per cent of the total reporting, say that sludge never was a troublesome problem with them.

How Experts Checked Sludge

OF ALL the information supplied by the Board of Experts, probably the most interesting and immediately useful—especially to fleets now troubled with sludge—is that supplied by the fleet operators who were burdened with troublesome sludge in the past but who corrected or controlled the conditions responsible to a degree where it no longer causes any serious maintenance difficulties. The methods mentioned have been compiled according to vocational groups and will be found in Table 2.

A study of Table 2 will show that, of the various corrective measures listed, four relate to the lubricant, three to maintenance procedures, and two to standard engine accessories. Some fleets attributed success to one of the corrective measures listed, others say it took two or more to get good results.

The use of a heavy-duty engine oil is the leading corrective measure employed to curb sludge problems; 51.54 per cent of the reporting fleets indicated that the change to this type of oil had beneficial results.

The other corrective measures relating to the lubricant itself show that 11.54 per cent also obtained beneficial results when they changed from a regular to a premium type of engine oil, and 9.23 per cent indicated that they solved their sludge problems by using additives, presumably of the crankcase variety.

A number of fleets reported that they eliminated their troublesome sludge problems by changing the brand of oil they were using. This may seem to be difficult to reconcile, because a change

Fewer Fleets Have Bad Sludging

58.6% report sludge used to be a troublesome problem but not now; 23% fleets troubled now

Table 1

VOCATIONAL GROUPS	Total Number of Fleets Reporting	Fleets Reporting Sludge is a Troublesome Problem NOW — Per Cent	Fleets Reporting Sludge Used to be a Troublesome Problem but NOT NOW — Per Cent	Fleets Reporting Sludge Never Was Troublesome Problem — Per Cent
COMMON CARRIER GROUP				
Local and Over-the-Road	43	14.0	65.1	20.9
FOOD DISTRIBUTION GROUP				
Bakeries, Dairies, Meats and Other Food Products	45	24.4	55.6	20.0
GOVERNMENT GROUP				
State, County, Municipal, Federal	53	30.2	60.4	9.4
CONSTRUCTION GROUP				
Builders, Quarries, Gravel	6	33.3	50.0	16.7
INDUSTRIAL GROUP				
Local and Over-the-Road	2	.....	100.0	.....
PETROLEUM GROUP				
Producers and Distributors	9	11.1	44.4	44.5
PUBLIC UTILITY GROUP				
Gas, Power, Water and Telephone	34	23.5	61.8	14.7
RETAIL DELIVERY GROUP				
(Other than Food) Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Stores, Beverage	18	33.3	50.0	16.7
TRUCK RENTAL GROUP	4	25.0	50.0	25.0
TRUCK AND BUS FLEETS, MIXED	8	12.5	50.0	37.5
TOTALS AND AVERAGE	222	23.4	58.6	18.0

Table 1. While the majority of fleets are not now troubled with sludge, 18 per cent say they never were, despite the fact that they are in the same vocational categories as those reporting troublesome sludge now and in the past

of brands of lubricant may not necessarily produce as salutary results as a change of types of engine oil might, unless the new brand also happened to identify the lubricant as a certain type—detergent, for example.

Of the three maintenance procedures mentioned as contributing to the control or elimination of sludge, frequent change of engine oil heads the list; 18.46 per cent of the fleets indicated this change of procedure. No details were supplied as to what the old and new oil change periods were.

More frequent change of oil filter elements was mentioned by 3.85 per cent of the fleets, and a like number indicated that they flushed their engines more frequently. In the latter case, some fleetmen said they flushed after every oil drain, some stipulated once a month, others were not specific. A number of fleetmen pointed out that not only did they flush the lubrication system thoroughly, but that they also circulated a chemical cleaning compound, to which they attributed much benefit.

Of the fleets that employed standard engine accessories to eliminate or control sludge, 13.85 per cent said that they "changed thermostats." No further details were given. However, it may be presumed that the changes were to higher ranges. The other fleets in this group, 10 per cent, mentioned that they installed oil filters.

The foregoing comments cover all columns in Table 2, except two. One of those omitted is headed "Followed Recommendations

Methods Employed by Fleets to Eliminate Troublesome Sludge

Of the many steps taken, majority got results by changing to heavy-duty oil

Table 2

VOCATIONAL GROUPS	Number of Fleets Reporting Sludge Used to be a Troublesome Problem but NOT NOW	Changed To Heavy-Duty Oil — Per Cent	More Frequent Oil Changes — Per Cent	Changed Thermostats — Per Cent	Changed To Premium Oil — Per Cent	Installed Oil Filters — Per Cent	Using Additives — Per Cent	Changed Brand of Oil — Per Cent	Frequent Flushings — Per Cent	More Frequent Change of Oil Filters — Per Cent	Followed Recommendations of Oil Testing Laboratories — Per Cent	Other Means Used to Eliminate Sludge — Per Cent
COMMON CARRIER GROUP												
Local and Over-the-Road	28	64.29	21.43	14.29	7.14	3.57	14.29	7.14	7.14	.....	.....	7.14
FOOD DISTRIBUTION GROUP												
Bakeries, Dairies, Meats and Other Food Products	25	44.00	16.00	20.00	12.00	8.00	4.00	.....	8.00	.....	4.00	48.00
GOVERNMENT GROUP												
State, County, Municipal, Federal	32	62.50	12.50	6.25	15.63	9.38	18.75	6.25	.....	.....	3.13	3.13
CONSTRUCTION GROUP												
Builders, Quarries, Gravel	3	66.67	33.33	.....	.....	.....	.....	33.33	.....	33.33	.....	.....
INDUSTRIAL GROUP												
Local and Over-the-Road	2	50.00	.....	.....	.....	.....	.....	50.00	.....	.....	.....	.....
PETROLEUM GROUP												
Producers and Distributors	4	50.00	25.00	.....	.....	25.00	.....	.....	.....	.....	.....	.....
PUBLIC UTILITY GROUP												
Gas, Power, Water and Telephone	21	38.09	33.33	14.29	9.52	14.29	4.76	.....	4.76	9.52	.....	19.05
RETAIL DELIVERY GROUP												
(Other than Food) Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Stores, Beverage	9	33.33	.....	22.22	22.22	22.22	.....	11.11	.....	.....	11.11	.....
TRUCK RENTAL GROUP	2	50.00	.....	50.00	.....	50.00	.....	.....	.....	50.00	.....	.....
TRUCK AND BUS FLEETS, MIXED	4	25.00	25.00	.....	25.00	.....	.....	.....	.....	25.00	25.00	.....
TOTALS AND AVERAGE	130	51.54	18.46	13.85	11.54	10.00	9.23	5.38	3.85	3.85	3.08	14.62

Table 2. Fleets that were burdened with troublesome sludge in the past, but were able to control or completely eliminate this problem, used the corrective measures listed above. Four of these measures concern the lubricant, three have to do with maintenance procedures, and two with standard engine accessories. Some fleets got results with just one of these measures, other fleets had to combine two or more before getting results

of Oil Testing Laboratory." In this case, no comments were given to indicate what recommendations were made by these laboratories.

The other column is headed "Other Means Used to Eliminate Sludge," in which 14.62 per cent of the reporting fleets supplied corrective measures other than those tabulated. Of the total fleets represented in this column, 16 per cent stated that they installed radiator fronts, 11.3 per cent said that they improved crankcase ventilation, and 8.76 per cent changed to high-test gasoline. The remaining corrective measures employed were not mentioned in great enough number to group percentwise. However, the following comments will indicate the nature of these measures.

One fleetman said he used spark plugs of a "different heat range," presumably hotter. Another fleetman reports insulating the oil pan and the valve side plates. Change of engine oil while engine was hot, more frequent engine tune-ups, and a change of carburetors are some of the other corrective measures mentioned.

Operations Most Affected by Sludge

THE type of service and the type of vehicle most affected by sludge were the next two factors established by this survey. While generally known, the findings are given in Table 3 to corroborate reports from lubrication experts and automotive engineers.

The table shows that trucks in local service are troubled with sludge to a greater extent than trucks in over-the-road service. Of the trucks in local service, 65.4 per cent are in stop-start operations and 23.1 per cent in general local service.

Table 3 also shows that light and medium type of trucks are troubled with sludge to a greater degree than heavy-duty trucks. This is understandable, of course, inasmuch as the light and medium trucks are to be found in great numbers in local service.

It was not possible to relate the type of engine lubricant used by all fleets currently burdened with troublesome sludge to the type of trucks and the type of operation, because there were too many variables to take into account. Approximately one-third of the fleets, for example, used two different types of lubricants—one type for the light trucks, another type for the heavier trucks. However, there was a sufficient number of such fleets using one type of lubricant for all their vehicles to permit this observation: 48.57 per cent use regular oil, 28.58 per cent use premium oil, and 22.85 per cent use heavy-duty oil. This just emphasizes a recognized fact that engine oil alone is not the criterion of the presence or absence of sludge in an engine.

Maintenance Problems Caused by Sludge

AS ALL affected fleet operators know, sludge is more than a nuisance to the lubrication men and mechanics. If neglected, it can ruin an engine. In all cases, it shows up as abnormally high maintenance cost.

Operating Conditions Conducive to and Vehicles Affected by Sludge

Light and medium trucks operating in stop-start service are affected most

Table 3

VOCATIONAL GROUPS	Number of Fleets Reporting Sludge Troubles NOW	TYPE OF SERVICE				TYPE OF TRUCK			
		Local		Local and Over-the-Road	Over-the-Road	Light	Medium	Heavy	Not Reporting
		General	Stop-Start						
COMMON CARRIER GROUP									
Local and Over-the-Road	6	....	66.7	16.7	16.7	50.0	83.3	....	....
FOOD DISTRIBUTION GROUP									
Bakeries, Dairies, Meats and Other Food Products	11	18.2	72.7	9.1	....	81.8	54.5	18.2	9.1
GOVERNMENT GROUP									
State, County, Municipal, Federal	16	25.0	56.3	18.8	....	43.8	56.3	50.0	....
CONSTRUCTION GROUP									
Builders, Quarries, Gravel	2	....	100.0	....	....	50.0	50.0	....	....
INDUSTRIAL GROUP									
Local and Over-the-Road	..	....	....	....	....	....	....	....	....
PETROLEUM GROUP									
Producers and Distributors	1	....	100.0	....	....	100.0	....	....	....
PUBLIC UTILITY GROUP									
Gas, Power, Water and Telephone	8	50.0	50.0	....	....	75.0	37.5	....	12.5
RETAIL DELIVERY GROUP									
(Other than Food) Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Stores, Beverage	6	16.7	50.0	....	....	50.0	83.3	66.7	....
TRUCK RENTAL GROUP	1	100.0	....	....	....	....	....	....	....
TRUCK AND BUS FLEETS, MIXED	1	....	100.0	....	....	....	100.0	....	....
TOTALS AND AVERAGE	52	23.1	65.4	9.6	1.9	57.7	57.7	26.9	3.8

Table 3. Lubrication experts and automotive engineers have maintained that troublesome sludge affects principally light and medium trucks engaged in local service, particularly stop-start operations. This table, based on reports from the nation's top fleets, currently affected by troublesome sludge corroborates this claim. The experts also have admitted that heavy-duty oil is not a cure-all. This, too, is partly established, as explained in the text

The members of the Board of Experts now affected by troublesome sludge were asked to indicate the types of maintenance problems caused by the presence of sludge. Their answers, tabulated according to frequency of mention, will be found in Table 4.

Piston ring sticking was mentioned by 67.3 per cent of the fleets as the principal maintenance problem caused by sludge. 53.8 per cent of the fleets checked clogged oil lines as a result of sludge formation. Bearing failure was mentioned by 40.4 per cent as another problem traceable to sludge. These are the three leading problems. Six others are mentioned.

It should not be assumed that the fleets listed as being affected with troublesome sludge are doing nothing about it. As a matter of fact, practically every fleet operator reporting troublesome sludge problems is experimenting with some kind of corrective measure, although, at the moment, is not able to report complete success. Many of these fleet operators said that they have tried heavy-duty lubricants and other corrective measures with little or no success. Which merely proves a point, often mentioned in connection with truck fleet operation, that "similar" operations can be "different" enough to prevent complete standardization of operation and maintenance practices. What is right for the majority may not be right for all fleets in the minority.

However, the information contained in this survey should prove to be very helpful to some of those minority sufferers if they have not yet tried all the corrective measures now being used successfully by the majority. For those, the information contained in Table 2 should serve as a good check list. Also, it should be remembered that some of the fleets that were successful in controlling or eliminating troublesome sludge, used, not just one, but two or more corrective measures before licking the problem. Perhaps all that the minority sufferers need is the right combination of corrective measures.

Maintenance Problems Fleetmen Attribute to the Presence of Sludge

Sticking piston rings, clogged oil lines, bearing failures are leading troubles

Table 4

VOCATIONAL GROUPS	Number of Fleets Reporting Sludge Trouble NOW	Piston Rings Stick	Clogged Oil Line	Bearing Failures	Burned Valves	Excessive Piston Ring Wear	More Carbon and Valve Jobs	Premature Cylinder Wear	Scored Cylinder Walls	Excessive Piston Wear
COMMON CARRIER GROUP										
Local and Over-the-Road	6	83.3	33.3	33.3	33.3	16.7	33.3	....	16.7	16.7
FOOD DISTRIBUTION GROUP										
Bakeries, Dairies, Meats and Other Food Products	11	45.5	63.6	63.6	36.4	18.2	27.3	27.3	9.1	18.2
GOVERNMENT GROUP										
State, County, Municipal, Federal	16	62.5	43.8	56.3	37.5	56.3	31.3	56.3	31.3	25.0
CONSTRUCTION GROUP										
Builders, Quarries, Gravel	2	100.0	50.0	50.0	50.0	....	....	....	....	....
INDUSTRIAL GROUP										
Local and Over-the-Road	..	....	....	....	....	....	....	....	....	....
PETROLEUM GROUP										
Producers and Distributors	1	100.0	....	....	100.0	....	....	....	....	....
PUBLIC UTILITY GROUP										
Gas, Power, Water and Telephone	8	62.5	75.0	12.5	25.0	25.0	12.5	12.5	....	....
RETAIL DELIVERY GROUP										
(Other than Food) Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Stores, Beverage	6	83.3	66.7	16.7	33.3	50.0	33.3	....	16.7	....
TRUCK RENTAL GROUP	1	....	100.0	....	....	....	100.0	....	....	....
TRUCK AND BUS FLEETS, MIXED	1	100.0	....	....	100.0	100.0	.. .	100.0	100.0	100 0
TOTALS AND AVERAGE	52	67.3	53.8	40.4	38.5	34.6	26.9	26.9	17.3	15.4

Table 4. Fleet operators with troublesome sludge, now or in the past, know that sludge is more than a nuisance to lubrication men and mechanics. If neglected, it can ruin an engine. Fleets currently affected with troublesome sludge listed their principal maintenance problems, which are tabulated above. These problems are closely related. Clogged oil lines, for instance, can cause bearing failures. Sticking piston rings affect pistons, rings and cylinders

Next Month: *When to Change Oil*

The studies of engine lubrication practices by the Board of Experts will be concluded in the February issue with an analysis of how the nation's top fleets deal with the following problems:

- ***When to Change Oil—Certain fleets drain oil at 500 miles, others at 10,000. What is your accepted practice?***
- ***Determining Oil Change Periods—What influenced you to decide on the time to drain oil? There were 10 factors that influenced this group of leading fleetmen.***
- ***Disposition of Crankcase Drains—Do you dump your crankcase drainings? While the majority of the Experts do, too, an increasing number are selling or reclaiming.***

Generator-Regulator Troubles

A review of common unit failures including overcharging, undercharging, unsteady output, noisy operation, point pitting and others

by ***M. K. SIMKINS***
Technical Editor
Commercial Car Journal

THE PRECEDING article covered a trouble shooting procedure for locating failures or potential breakdowns in the battery, starter and lighting systems. Part II will treat of the generator-regulator troubles to complete the electrical trouble shooting phase of the shop manual series.

It is well to remember in the discussion following, that the outline suggests quick checks of the generator and regulator with the thought that potential troubles can be detected in this manner with the least amount of time and trouble. However, this does not substitute for periodic, systematic servicing and adjustments of these units. The experienced mechanic knows that the generator must be checked off the truck on a regular test bench for accurate results. It is important that the position it occupies in the truck be duplicated on the bench, and since the output is dependent somewhat upon its temperatures, any checks should take into consideration temperature readings. Instruments used to test the unit should be accurate within 2 per cent.

Regulators are designed to take care of changes in temperature, and settings should be made with the specific temperature values taken into consideration. Tests should be made with the cover in place since there is a certain magnetic leakage between the coil of the regulator and the outer cover. Testing with cover off gives an unsatisfactory temperature condition because of the blast of air from the fan.

Only accurate and reliable meters should be used, and these only by competent mechanics. Voltages should be read to 1/10-volt or less, and current to ½-ampere. It is imperative that the mechanic refer to manufacturer's specifications for adjustment data and that adjustments be kept to proper tolerances. Without this scientific approach to electrical unit settings, the advantages of periodic checks and adjustments will be reduced appreciably and failures will occur prematurely.

Failures to Charge

FAILURE of the generator to produce any output may be due to sticking brushes, a dirty or gummed armature or poor internal or external connections. If thrown solder is evident on the cover band, it may indicate an open circuit or burned commutator bars. This is an indication that the generator has been overloaded, and in most cases unit replacement will be necessary.

If the brushes are making good contact and are seated properly on the commutator, it may be necessary to use test points to locate the cause of failure to charge. A check for grounds in the generator can be made by raising the grounded brush from

(TURN TO NEXT PAGE, PLEASE)

Generator-Regulator Troubles

(Continued from page 53)

the commutator and insulating it with cardboard. Test points can be used to check for ground from the generator main brush lead or "A" terminal to the generator frame. If the generator is the type with the field grounded internally, the field ground lead is disconnected before making this check, and the field is checked for ground separately.

Lighting of the test lamp indicates an internal ground. This can be further located by raising and insulating all brushes and testing in turn the insulated brush holders, commutator and fields to locate the place of ground. If a grounded field is found, the regulator contact points should be checked, since a grounded field may permit a high field current which will cause burned and oxidized points. (Internal grounded type units.)

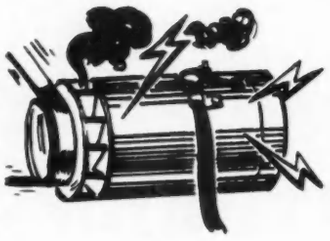
If the generator does not show ground, the field is then checked for open circuit with the test points. The lamp should light when one test point is placed on the field terminal or grounded field lead and the other is placed on the brush holder to which the field is connected. If it does not light, it is an indication of an open circuit.

Short circuits in the field can be checked by connecting a battery and ammeter in series with the field circuit. Manufacturers' specifications should be used to determine whether the field is drawing sufficient current. If a short circuit is found in the field, the regulator points should be cleaned and reset since a shorted field circuit may have permitted excessive field current to burn the points.

Next the armature will be checked for open and short circuits. This may occur through a shorted armature, an open field coil or with high resistance contact points. Open circuits can be repaired if the commutator bars have not been loosened. Usually open circuits occur at the bars and are a direct result of overloading of the generator with subsequent overheating.

To locate short circuits in the armature, it will be necessary to use a growler. Shorts here are caused by copper and brush dust shorting out the commutator bars. Such conditions occurring at the cross-overs on the coils at the core end can be repaired by bending the wires and reinsulating the exposed bare wire.

Test points will show up grounds in the armature. A grounded armature will permit the lamp to light when it is placed between the commutator bar and the shaft. Grounds at the core ends can be repaired by placing insulating strips between the core and the coil which has been grounded.



Unsatisfactory Output

AN UNSTEADY or low output may be due to any of the factors listed above. In addition the mechanic will check for a defective regulator, low brush spring tension, high mica at the commutator, an out-of-round commutator, excessive lubrication with resultant soft or oily brushes, or a defective ammeter itself.

Excessive generator output can be caused by an internal ground in the field circuit (generator type with generator field grounded externally). In this case the regulator is prevented from limiting charge. This type of failure is usually due to poor insulation at the field. If the ground occurs at the pole shoes, the field coils should be removed and re-insulated. A ground at the "F" terminal stud can be repaired by installing new insulating washers.

With the generator type having the field circuit internally grounded, excessive output would only be caused by a short between the field circuit and the insulated main circuit, and systematic checks will locate the trouble.

On third-brush generators, excessive charging will occur if the third brush is advanced too far in the direction of armature rotation. And finally, the mechanic should not overlook the possibility of an overheated battery as a cause of overcharging. Under high temperature conditions, it may be necessary to reduce the voltage regulator setting in order to cut down overcharging with subsequent overheating of the battery.

Generator Indications

MANY reported battery as well as regulator failures are a result of a faulty generator, and a systematic quick check of the units should be initiated before pinning the fault on any other unit in the system. The charging rate and the condition of the battery will guide the mechanic in tracing troubles.

If the battery is low and there is no charging registered at all, it may be due to a defective generator, regulator or wiring. To determine whether the trouble is in the generator or regulator, the "Field" terminal of the regulator is grounded with a jumper (where regulator is on grounded side of field), thus completing the generator field circuit without it passing through the regulator. If the generator output, as shown on an ammeter, is still low, the generator is at fault. If the generator shows no output at all, the "Generator" terminal of the regulator should be struck against a ground to check for spark. Lack of sparking at this point would indicate a defective generator.

If spark is produced, it is possible that the cut-out is not operating to permit current flow to the battery. This could be caused by burned points, points not closing, an open cut-out winding or a grounded voltage winding. To check for a defective cut-out a voltmeter is connected between the "Generator" terminal of the regulator and the ground. The engine is started and closing voltage of the cut-out points is noted. To check point opening, an ammeter is connected in the battery charging line and discharge current necessary to open cut-out is noted.

To check the voltage regulator a voltmeter is connected between the "Battery" terminal of the regulator and ground, observing opening of the contacts. Failure to open may be due to oxidation, burning, weak spring tension, excessive air gap or defective coils. Most shops will not be able to go further than these checks, and after assurance that the unit is defective, it should be replaced.

If a high charging rate is found in conjunction with a fully-charged battery, either unit may be at fault. An ammeter should be connected in the battery charging line and the "Field" wire should be disconnected from the field terminal of the regulator to open the field circuit of the regulator. If the output drops to zero, the generator is O.K., but if the output does not drop off, the field circuit is grounded inside the generator.

If the output drops to zero under this test, the trouble is in the regulator and may be due to sticking points or a shorted coil within the regulator, or a regulator out of adjustment.

Arcing at Commutator

ONE OF the most frequent conditions accompanying a defective generator is arcing at the commutator. Causes are many in number. It may be due to improper seating of the brushes through insufficient brush spring tension, improper brushes, accumulation of oil and dirt in the slots on the commutator, or high mica between the commutator bars. Brushes worn down to less than half their original length should be replaced with new ones. If the brush springs show a blued or burned condition, it is an indication that they have been overheated and have lost their proper strength. New ones should be installed. If the brushes are tight in the holders, they may bind and produce improper seating with accompanying sparking at the commutator. New brushes will produce a similar condition if not seated properly by the use of a bedding stone. Sandpaper can be used to seat brushes. Emery cloth should never be used as the abrasives will embed themselves in the bars or brushes and continued lapping action.

If the commutator is worn rough or eccentric, sparking will be produced, and under these circumstances the armature should be put in a lathe and trued up. A high mica between the bars should be undercut on a mica undercutter to reduce sparking and insure proper brush seating.

Another cause of arcing at this point may be loose connections, loose shunts in brushes, worn pigtail insulation and defective solder at these points. Worn generator armature bearings will produce the same effect when the armature bounces and destroys brush seating.

Blackening of the commutator is very often a direct result of sparking.

TROUBLE SHOOTER'S CHECK LIST

I. Generator

A. Fails to charge

Open charging circuit
Grounded wire in charging circuit
Cut-out points stuck open
Open coil in cut-out windings
Sticking brushes
Dirty, gummy commutator
Burned out commutator
Grounded field coil
Short circuit in field

B. Low, unsteady charging rate

Conditions listed in A
Slipping fan belt
Defective ammeter
Loose generator pulley
Grounded generator field
Open armature winding
Loose pole pieces in field circuit
High mica between commutator bars
Improperly seating brushes
Worn brushes, weak spring tension
Incorrect type of brushes
Out of round commutator
Resistance in charging circuit

C. Excessive charging rate

Grounded field—external ground type
Shorted field—internal grounded type
Improper third brush setting
Overheated battery
Defective regulator

D. Noisy generator operation

Worn or damaged bearings
Insufficient bearing lubrication
Loose generator drive pulley
Misaligned fan belt or pulley
Loose field pole pieces
Improperly seating brushes
High armature slot wedges
Excessive output

E. Arching, noise at brushes

High mica between commutator bars
High commutator bars
Out of round commutator
Sprung armature shaft
Dirty, glazed commutator
Hard spots in brushes
Weak brush spring tension
Brushes worn down or loose
Loose wiring at pigtails
Shunts loose in brushes
Excessive output

F. Premature armature failure

Excessive charging rate
Failure of voltage regulator
Improper type brushes
Worn shaft bearings

II. Regulator

A. Excessive oxidation of points

Poor ground connections
Misaligned contact points
Improper air-gap setting
Shorted field in generator
Wrong type of replacement points
Open shunt resistors
Reversed polarity

B. Excessive point pitting

Long usage, normal wear
High current output of generator
Insufficient point spring tension
Reverse polarity in generator—pitting cut-out points
Suppression condenser on "F" terminal
Items under II A

C. Burned Coil windings

Excessive current output
Short in charging circuit
Regulator set too high
Resistance in ground circuit
Stuck cut-out points

D. Sticking contact points

Open resistance unit
Defective winding in regulator
Pitted or oxidized points
Misaligned points
Shorted field coil in generator
Poor ground connection between generator and regulator

III. Causes of Inaccurate Adjustments

A. Instruments

Use of inferior instruments
Careless calibration of instruments
Use of damaged instruments without checking accuracy

B. Procedure

Careless checking methods—failure to read meters closely
Failure to consider temperature
Failure to normalize engine prior to tests
Checking regulator with cover off
Failure to clean units before adjusting

C. Mechanic's short cuts

Failure to use manufacturers' specifications
Failure to duplicate road conditions on bench
Use of wrong type or inferior parts
Failure to replace worn parts

Burned Out Armatures

BURNED OUT armatures are usually the result of only one condition—too much current passing through the generator. In many cases this is simply due to a too high charging rate, caused by a faulty regulator or a regulator out of adjustment.

(TURN TO NEXT PAGE, PLEASE)

Generator-Regulator

(Continued from page 55)

The wrong type of brushes may cause the brush to scratch and wear the commutator bars so that metal is carried across them, resulting, in a short between bars and eventual burning of the armature.

And finally, worn generator bearings are a frequent cause of burned out armatures. This condition arises when the shaft-to-bearing play permits pounding of the armature on the fields. Excessive heat generated with this friction will eventually cause a burned out armature.

Surprisingly enough, burning of the armature does not happen all at once, to cause a road failure, but it is a development over a relatively long period of time. Excessive output through improper adjustments produces heat which chars the insulation, cuts efficiency and eventually causes the solder to melt or the insulation to break. It is a cumulative process, and can be averted by frequently checking the charging rate and keeping adjustments to proper specifications.

Noisy Generators

EXCESSIVE noise originating at the generator is many times due to worn armature shaft bearings, permitting excessive end play of the shaft and causing the armature to bounce. Worn bearings will permit misalignment of the armature and eventual shorting of the armature windings, resulting in a burned out generator. Many times the cause of excessive bearing wear is a fan belt adjusted too tight.

A loose drive pulley or gear may account for generator noise as can insufficient lubrication of the bearings. Further checks should be made for misalignment of the generator belt or for a loose unit mounting if these procedures do not correct the trouble.

Another type of generator noise may arise from the brushes and will show up as a hum, clicking or singing, accompanied usually by arcing at the commutator. Most of these conditions are a result of improper seating of the brushes and can be listed as: high mica insulators between the commutator bars, high commutator bars, rough or dirty commutator, hard spots in the brushes, insufficient brush spring tension, loose brush holders. Through a process of elimination, the source of the trouble can be located quickly by the competent mechanic.

Regultor Troubles

REGULATOR troubles, as defects in the unit itself, are relatively few. Accordingly, care should be taken that the trouble is definitely in the regulator unit before it is blamed for improper operation.

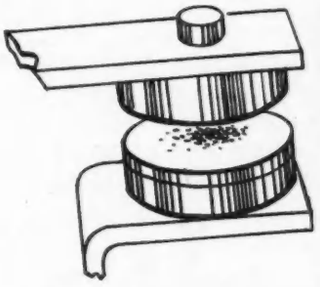
If a high charging rate and a fully charged battery are noted and the generator is definitely determined as OK, the field wire is disconnected from the "F" terminal of regulator. If the output drops to zero and the generator field is OK, trouble is definitely in the regulator. This may be caused by sticking points, a shorted coil within the regulator or an open voltage regulator coil. Additional checks may be made on the regulator by opening the voltage regulator points by hand. If the output drops off, the voltage regulator setting is high or the voltage regulator winding is open. If the output does not drop off there may be internal grounds in the regulator. This applies to systems having a generator with field grounded internally.

In testing further with a low battery and a low charging rate, the terminal "F" is grounded with a jumper, and if the generator shows no output at all, the generator or the cut-out is defective. If spark is produced when the field circuit is broken, it is a sign that the regulator or relay is not operating. Causes of this type of trouble could be a defective regulator unit, a low voltage setting, oxidized contact points or an open generator field circuit within the regulator. Loose connections or maladjusted contact points would cause this.

Many shops finding a defective regulator will simply replace the unit. A competent mechanic, however, can make contact air-gap and spring tension changes in the unit at fault. Checks should be made with reliable precision instruments and adjustments should follow specifications.

Contact Point Failures

IT HAS BEEN found that a great many troubles in the regulator are due to dirty contact points. Cleaning points or changing spring tension will correct most troubles. A thin contact point spoon file should be used for this purpose, but the mechanic should be careful not to file the small point excessively as it is only a few thousandths of an inch thick. Sandpaper or emery cloth should never be used in this operation. Points can be filed without disturbing the setting if care is taken to avoid bending the contact spring.



If continued fouling of the points is experienced, the mechanic will want to make a thorough check to determine the cause. Excessive field current or open resistance across contacts will cause point failure. Excessive arcing is the sign of oxidized contact points, and in most cases cleaning will provide the remedy. Rapid oxidation can be caused by a poor ground connection at the generator, regulator or battery. Sometimes this is caused by loose mounting bolts, paint or grease under the bolts or it may be caused by defective wiring. If the contact points are misaligned or the air gap or point opening is out of adjustment, excessive arcing and resultant oxidation will take place.

A shorted field in the generator will permit an excessively high current to flow through the points, with oxidation and malfunctioning the result. If the resistance units or windings in the regulator are burned or open, an excessive voltage drop will take place across the points and burning will occur. Burned or pitted cut-out points may indicate that the relay has been operated with a generator which had reversed polarity. And finally, inferior, or the wrong type of replacement points used in the regulator will give unsatisfactory service due to the same conditions. Of course every mechanic knows that cut-out relay points should never be closed by hand with the battery connected, as this will allow a heavy current to flow into the regulator, and the points will burn, either sticking or failing prematurely in later service.

EXCISE TAXES

Fleets Should Seek Their Repeal Because:

by ***ARTHUR C. BUTLER***
Director, National Highway
Users Conference

- **1. They add to cost of doing business.**
- **2. They are "frozen" into expenses, and raise the break-even point.**
- **3. They discriminate against users of highway transportation.**
- **4. They tend to increase the price of products or services, and thus tend to limit markets.**
- **5. By pyramiding everybody's automotive tax costs, they may cut highway use. If that happens, the burden of highway costs will be heavier on the vehicles remaining — including your fleet's.**
- **6. If these taxes remain on the books, and their receipts are linked to Federal road expenditures, the effect can be to help burden the motor vehicle owner with 100 per cent of all highway costs. This is contrary to all accepted thinking on highway fiscal policy.**

THE FLEET operator has a big stake in the deliberations of the Congress, which resumes sessions in January. Decisions taken this year on two issues may affect his business for decades to come.

The first question is whether the emergency Federal automotive taxes are to be repealed.

The second is whether any Federal automotive excise tax should be levied to pay for Federal road aid.

Fleet operators, like other highway users, are seeking repeal of the temporary emergency auto excises for a number of reasons, each a compelling one in itself.

The box on this page summarizes these reasons. The 1½-cent gas tax, the 7 per cent tax on new trucks, tractors and semi-trailers, the 7 per cent on automoiles and motorcycles, the 5-cents-a-pound tax on tires, the 9-cent-a-pound tax on inner tubes, the 5 per cent tax on parts and accessories, and the 6-cent-a-gallon tax on oil are all reflected in the fleet operator's costs, and even the "penny taxes" impose heavy burdens when their annual toll is considered.

If these costs are permanently "frozen" into the nation's business expenses, they will ultimately necessitate higher prices to the consumer than might otherwise be required.

Because no similar taxes are levied against non-automotive transportation, companies which take advantage of the speed and convenience of highway transportation are penalized for doing so. Railroads don't have to pay a tax on their locomotives. Why should a fleet owner pay a special, discriminatory tax on a new truck or trailer—a tax which, of course, is ultimately reflected in the price of the product or service he sells to the consumer?

If these taxes are continued, they will, of course, have great impact not only on the fleet operator but the private automobile owner as well.

A worker in manufacturing industry, making an average $48 a week, now has to work almost two full weeks just to pay the Federal automotive excises to own and operate a new car one year.

As the National Highway Users Conference said in a letter to Congress accompanying a petition for repeal of the auto excise taxes, "this is an enormously significant development, for highway transportation in America has depended in the past for growth on the financial ability of citizens of all income groups to use automotive transportation."

If these Federal automotive taxes result in piling the private driver's tax load so high that some of these drivers are forced to give up car ownership, the tax burden will have to be shared by fewer persons. Not only would there be fewer persons to pay the Federal taxes, but there would be fewer to pay the state taxes which, in the main, build our roads. Thus the burden on remaining highway users would be magnified. And the remaining highway users, of course, would include the fleet operator.

These are telling reasons why the Federal automotive excise taxes should be repealed. But there is another aspect to the question.

Taxes for Federal Aid?

THERE is some agitation to continue the Federal automotive excise taxes, or part of them, in order to finance Federal Aid to the states in

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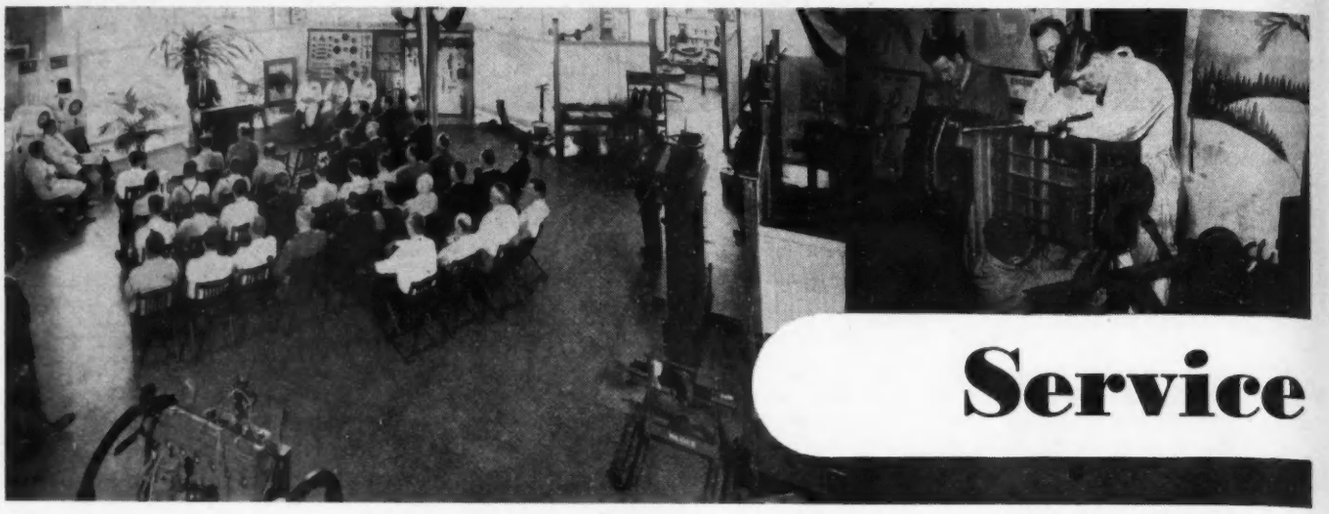


Service

A survey of manufacturers reveals 18 service schools available to fleets. Other companies provide free engineering service, literature, advice

NUMEROUS requests from fleetmen asking for information on factory service schools to which they might send their mechanics initiated this survey of manufacturers to find what is available. Of the 60 returns to the questionnaire sent to some 100 manufacturers, 43 provided training information which should prove useful to fleet operators. Eighteen companies are conducting service training schools, organized to train mechanics in nearly every phase of vehicle maintenance. Twenty-five organizations provide training facilities in the nature of bulletins, manuals, traveling technicians and meeting with fleet operators. Many other companies are in the process of organizing regular training classes which will be available to fleetmen in the near future. And several manufacturers who have schools in existence declined to be represented due to the fact that they cannot keep up with current entrance applications.

The location of the existing schools, length of instruction, technique of presentation as well as a brief review of the schedule is brought to the reader with the thought that he will want to avail himself of the maintenance assistance offered by manufacturers of equipment he is using. In many cases he or his representative may attend courses free of charge. The student is required, however, to provide his own transportation, board and hotel accommodations while at the school. Addresses are listed so that he may write for complete information.

Electrical Schools

American Bosch Corp.

American Bosch Corp. maintains a service school for the training of operators and mechanics in the maintenance of Bosch fuel injection systems. The school is located at Springfield. Instruction period lasts from 3 to 5 days, with no charge being made for matriculation. The course is conducted through alternate lectures and laboratory demonstration work.

Classes are operated on an intermittent schedule. For information on entering the school, write C. L. Shedd, sales promotion manager, American Bosch Corp., Springfield, Mass.

Sun Electric Corp.

Sun Electric Corp. is now in the process of establishing branch warehouses and offices throughout the major cities of U. S. It is planned to establish training classes at all of these locations for the benefit of users of Sun equipment. Instructions will be carried out by reliable representatives through practical application on a vehicle. This educational service will be free of charge. It is expected that any group of mechanics or service personnel of reliable and interested classification will be eligible for admission. For dates of instruction and additional details, write R. A. Bland, assistant sales manager, Sun Electric Corp., Chicago.

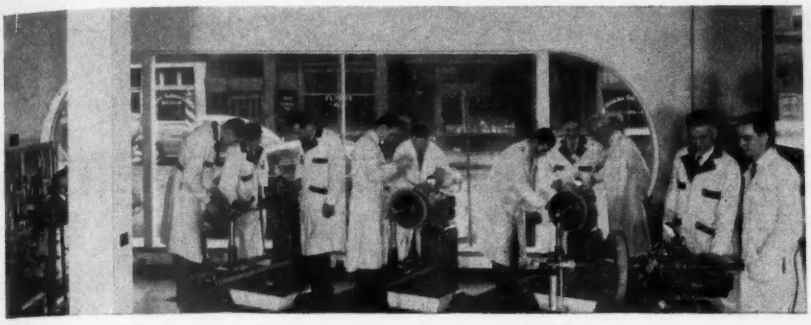
Delco-Remy Corp.

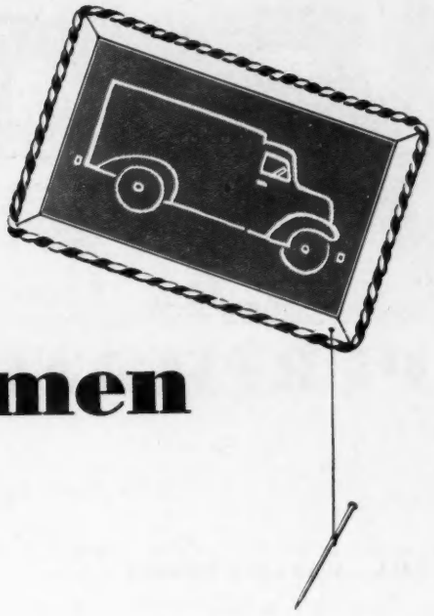
Delco-Remy Div. of General Motors Corp. is developing a training program for the benefit of fleet maintenance personnel. The company plans to conduct a two-week course covering operating principles and maintenance procedures on the various types of Delco-Remy electrical units used by fleets. Instruction is free. Plans call for the opening of this school in the spring. For additional information write F. P. Plovick, Service Department of Delco-Remy, Anderson, Ind.

Weidenhoff, Inc.

Joseph Weidenhoff, Inc., Chicago, has an electrical equipment instruction course located at Algona, Iowa. Subjects covered include generators, starters, magnetos, voltage regulators and the general electrical system. National fleet account users of Weidenhoff equipment are eligible. Instruction is free and varies from two days to one week. Specalists usually receive a week of instruction, while general mechanics prefer only about two days.

The school is in continuous operation.





Schools for Fleetmen

Fleetmen wishing admittance should write V. L. Gunder, care of Weidenhoff, Inc., Algona, Iowa. A fleet operator can either send his men to this school, or if the fleet is of sufficient size, the company will work with them through the territory supervisor.

Allen Electric

Allen Electric and Equipment Co. is offering a training course known as "Modern Engine Tune-Up" for fleet operators and their representatives. The course consists of 12 night classes, one evening each week for three weeks, covering both the theory and practice of modern tune-up procedure. Subjects covered include basic fundamentals of internal combustion engines, including construction and testing of all electrical units such as voltage regulator, automatic choke, distributor, generator, coil, carburetor, manifold, etc. It takes up such subjects as the various types of fuels, combustion, detonation, exhaust analysis, as well as the construction and the use of meters.

A small matriculation fee is charged. Classes are limited to 16 mechanics, usually one mechanic from each organization. For more details write E. S. Orr, general service manager, at Kalamazoo, Mich.

Engine Overhaul Schools

Van Norman Co.

The Van Norman Co. is offering a 3-day instruction course covering crank shaft grinding procedures. Representatives of fleets who have purchased a Van Norman machine are eligible to attend. Courses are in continuous operation and one may enroll at any time without cost. Prepared instruction material is provided fleets with Van Norman equipment. Those interested should contact the company at 3640 Main St., Springfield, Mass.

Spray Painting Schools

The Devilbiss Co.

The DeVilbiss Co., for many years, has been conducting classes at the DeVilbiss School of Spray Painting at Toledo, which anyone owning a DeVilbiss spray outfit is eligible to attend. No tuition fee is charged.

In addition to complete lecture courses on the purpose, use and care of spray painting equipment which is followed by actual practice sessions, con-

(TURN TO PAGE 102, PLEASE)

Mechanic Training Schools

Electrical

Allen Electric & Equipment Co.
American Bosch Corp.
Delco-Remy Corp.
Sun Electric Corp.
Joseph Weidenhoff, Inc.

Engine Overhaul

Perfect Circle Co.
Van Norman Co.

Brake Service

Bendix-Westinghouse
Barrett Equipment Co.
The Puritan Co.

Painting

The Devilbiss Co.

Welding

Hobart Brothers Co.
Lincoln Electric Co.

Wheel Alignment

Bear Mfg. Co.

Truck Manufacturers

General Motors Institute
Chrysler Corp. Fargo Div.
International Harvester Co.
Willys-Overland Motors, Inc.

Instruction and Advice

Engine Overhaul

Hastings Mfg. Co.
Koppers Co.
Moog Industries, Inc.
Sealed Power Corp.
Wilkening Mfg. Co.

Brakes

Wagner Electric Corp.

Carburetor

Carter Carburetor Corp.
Zenith Carburetor Div.

Painting

E. I. DuPont De Nemours & Co.

Machine Tools

Black & Decker Co.
Blackhawk Mfg. Co.
Sunnen Products Co.

Wheel Alignment

Bee Line Co.
John Bean Mfg. Co.
Micro-Liner Service Corp.
Weaver Mfg. Co.

Axles and Transmissions

Detroit Automotive Products Corp.
Fuller Mfg. Co.
Timken-Detroit Axle Co.

Truck & Engine Manufacturers

The Buda Co.
Cummins Engine Co.
Diamond T Motor Car Co.
Ford Motor Co.
Four Wheel Drive Auto Co.
GMC Truck and Coach Div.
Mack International Motor Truck Corp.
White Motor Co.

USE POSTCARD — NO STAMP NEEDED

PUBLICATIONS

A review of the year's best offerings — listed again so fleetmen may complete their files with these valuable vehicle maintenance helps

L91. Control Forms

This sample portfolio is offered as an aid to the fleet operator in selecting efficient forms and systems for his organization. Samples include shipping forms, credit vouchers, bank drafts, delivery receipts, freight bills, receipts and many other forms applicable to nearly every truck fleet. To improve your control system and rejuvenate your paper work, write L91 on the free postcard and study the suggestions outlined in this material.

L93. Electrical Service

A 20-page, illustrated publication covering checks and adjustments of units in the electrical system. The instruction outlines preventive maintenance and timely service tips on such units as the regulator, generator, starter, distributor, etc. Photographs show details of adjustments, checking and cleaning procedures. Schematic drawings of wiring diagrams, unit locations and testing instrument hook-ups serve to clarify the text. Write L93 on the free postcard and add this manual to your files.

L99. Cleaning Manual

A 64-page, illustrated manual providing the latest methods and materials for fast, thorough and economical cleaning of trucks. Part of the instruction covers cleaning of the engine with steam gun or by a cold solution, while additional chapters take up parts cleaning methods, cooling system cleaning, and control and prevention of sludge. Another section covers the various kinds of cleaning equipment used in all size shops. This valuable booklet is yours for the writing of L99 on the postcard.

L103. Ignition Service

A 20-page manual which can be used as a textbook or a maintenance guide in any shop. It covers such subjects as what to do with pitted points, point adjustment, cam angle setting, how to adjust a distributor on a synchroscope, how to detect weak coils and many other related subjects. Quick checks of the system as well as maintenance tips are included. Photographs, drawings and charts clarify the instruction. This is a valuable guide to more efficient ignition work. Write L103 on the postcard and get a copy.

L108. Wheel Alignment

A series of two worthwhile pamphlets designed to help the fleetman correct such troubles as rapid tire wear, steering instability and unsafe road conditions. One pamphlet shows principles of wheel alignment, presenting the five angles of alignment and their relation to steering stability. The other covers practical suggestions for balancing wheels for safer, more economical operation. Write L108 on the postcard for a free copy.

L113. Brake Service

A new 30-page brake manual showing methods of locating troubles, diagnosing failures and maintaining the system at a high level of efficiency. This illustrated booklet features a trouble shooting chart showing causes of such defects as low pedal, spongy pedal, erratic braking, noisy brakes, fading, etc. Another section gives specific instructions for the disassembly, inspection and adjustment of nearly every type of brake. Write L113 on the postcard and add it to your files.

"I want that truck ready to roll in half an hour!"

L128. Compressed Air

A 16-page publication covering the fundamentals of air compressors. Included in the book are practical hints on compressor location, mounting, wiring, lubrication and adjustments—all designed to help the operator attain longer life from his machine. Recommendations for weekly and monthly service, as well as a list of common compressor troubles and their causes will enable the operator to get more efficient compressor operation. Write L128 on the postcard for a copy.

L130. Driver's Guide

A concise treatment of the fundamental rules of safe driving, containing 196 practical suggestions for all phases of truck driving. The book features such topics as intelligent use of instruments, lubrication, gasoline economy and various servicing tips which the driver should observe in caring for his vehicle. A "must" for every fleet, this booklet is available free of charge. Write L130 on the postcard for a copy.

L132. Painting Guide

This 32-page booklet contains common questions and answers pertaining to the operation and use, care and adjustment of spray painting equipment. It consists of a series of questions selected from those received from the company's training school and at numerous clinics—with answers provided by engineers. Information covers data on spray guns, material containers, hose and connections, air transformers, condensers and compressing outfits. These 144 suggestions are yours upon request. Write L132 on the free postcard.

USE POSTCARD — NO STAMP NEEDED

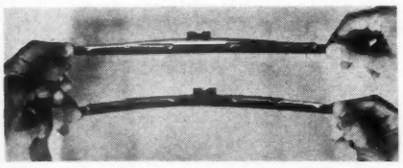
NEW PRODUCTS

The newest in replacement parts, accessories, shop equipment, supplies—illustrated and described in brief for the fleetman

P100. Wiper Blade

A new wiper blade for curved windshields, the Trico "Rainbow," is announced by the Trico Products Corp., Buffalo, N. Y.

With a "vertebrae" that flexes to conform to the contour of the glass, the rainbow curves or flattens to maintain wiping contact throughout its arc of travel as the shape of the contour changes.



A yoke-type connector applies pressure which is transmitted evenly throughout the entire length of the flexible blade. The blade's backbone prevents sidewise movement yet permits the blade to flex in and out. The rubber wiping edge is resilient enough to lay over slightly on its edge so as to present the correct wiping angle as it operates.

Use Free Postcard For More Details.

P101. Automatic Dimmer

A new automatic headlight dimming device developed by Automatic Headlight Dimmer Corp., Camden, N. J., is a compact unit mounted on the left side of the front bumper, to dim automatically the lights of the vehicle when approaching another.

The unit consists of a photo-electric light pick-up, an electronic amplifier, connecting harness and reset switch. The light-sensitive tube automatically switches the vehicle's headlights to the lower beam when another vehicle approaches at a distance of not less than 500 ft. The unit also comes into operation when a vehicle equipped with the "Beamaster" comes within 25 to 50 ft. of a tail light, thus preventing glare in the rear-view mirror of the vehicle ahead.

Installation of the dimmer does not require any change in the wiring system of the truck.

Use Free Postcard for More Details.

P102. Leak Detector

A new bearing leak detector developed by Safety Equipment Co., South Bend, Ind., is said to provide fast, easy efficient checking of all cam, main, and rod bearings as well as all internal oil passages.

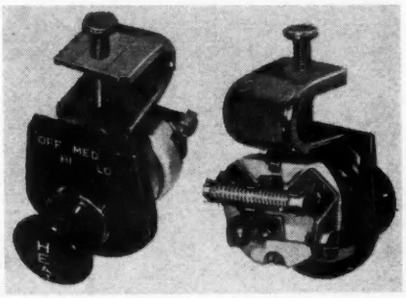
The Bennett-Feragen Bearing Wear Detector supplies oil at a constant, pre-determined pressure to the engine lubricating system. An important feature of the unit is the checking of overhead valve lubrication, showing whether proper lubrication reaches all rocker arms and push rod assemblies.

The unit is light in weight, completely portable, simple in design and operation and is constructed of high quality materials.

Use Free Postcard for More Details.

P103. Heater Switch

Balkamp, Inc., Indianapolis, announces a new-type heater switch equipped with a removable resistor, eliminating the need for replacing burned-out switches. The



resistor is held in place by clips and can be replaced as easily as a fuse—without removing the switch itself.

Use Free Postcard For More Details.

P104. Safety Tube

Pennsylvania Rubber Co., Jeannette, Pa., is announcing the development of a compression safety inner tube.

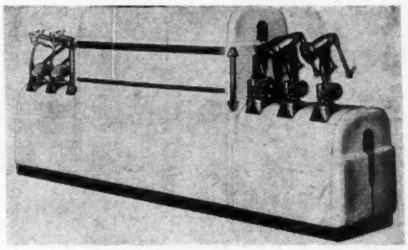
The "Air Lock Safety Tube" forces the rubber pores tightly together, causing the rubber to grip tightly around the puncturing object, when a puncture occurs.

An extra safety feature of the tube is a venting design providing a means for trapped air to travel to the valve stem and be discharged.

Use Free Postcard for More Details.

P105. Center Alemiter

Designed for between car lift installation, the Center Alemiter developed by Stewart-Warner Corp., Indianapolis, has all



necessary services. Three air-operated 100-lb barrel size pumps are in center cabinet to handle chassis and gear lubricants. Six service hose outlets are provided at the ends of the cabinet for chassis and gear lubricants, oil, air and water. Hose on reels are spring wound, have no back pull when in use and retract slowly and safely. Entire unit is shipped completely assembled, ready for use upon connection of air and water lines.

Use Free Postcard For More Details.

P106. Premium Oil

Waverly Petroleum Products Co., Philadelphia, Pa., has introduced a new premium grade motor oil said to inhibit sludge, bearing corrosion, cut acid formation and hold non-lubricating lubricants in suspension. This results in better oil stability, longer lubricating life and cleaner engines, the company states.

Use Free Postcard for More Details.

P107. Parts Cleaner

A newly developed cold parts cleaner for removing carbons, dyes, gums, dirt and grease deposits, etc., from carburetors, fuel pumps, pistons, hydraulic brake equipment parts, etc., has been announced by Maplewood Products Co., Inc., St. Louis, Mo.

(TURN TO NEXT PAGE, PLEASE)

NEW PRODUCTS

USE POSTCARD — NO STAMP NEEDED

(Continued from Page 61)

It is sold under the name of Gumco Metal Brite Parts Cleaner. It has fast cleaning action requiring little or no agitation, the company states.

Use Free Postcard For More Details.

P108. Gear Cleaner

A new degreaser, which completely cleans and dries either transmission or differential in 10 min. has been introduced by Aero-Motive Mfg. Co., Kalamazoo, Mich. The new unit, called "Zoo" Gear Cleaner, electrically heats a volatile solution to create an even flow of hot, penetrating vapor.

A new type "universal" one-piece connection screws instantly into the plug hole of any unit. Constructed chiefly of light weight aluminum alloys, the gear cleaner is easy to handle.

Use Free Postcard For More Details.

P109. AC Welders

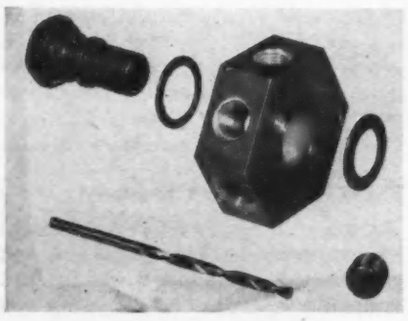
A new line of AC welders has been developed by the John A. Kern Co., Chicago, Ill. The line includes two models for general shop use—130 and 180 amps. All models are NEMA rated.

Features include patented electrical and magnetic circuits, compactness, the absence of rotary parts, efficient cooling, carriages of welded steel tubing.

Use Free Postcard For More Details.

P110. Hydraulic Fitting

The New York Air Brake Co., New York, N. Y., announces a universal hydraulic fitting kit designed to simplify



connecting either the Hycon Compound Cylinder or a conventional master cylinder to one or more hydraulic lines ¼ in. or 5/16 in. in diameter.

The block is tapped and machined to accommodate three 5/16-in. and two ¼-in. lines. In addition there is a ⅛-in. P. T. stop light switch outlet.

Use Free Postcard For More Details.

P111. Puller Set

A master puller set announced by the Plomb Tool Co., Los Angeles, Cal., provides the equipment needed for a great many puller jobs. With the parts furnished it is possible to assemble any Plomb silde hammer, light-duty, medium-duty or heavy-duty puller. In addition, the set includes a wheel puller, a blind bearing puller, a single jaw puller and a cap screw crossarm. The set, designated as No. 4000AA, has only 42 items.

Use Free Postcard For More Details.

P112. Electric Motors

A new line of fractional horsepower electric motors is available from the Foster Mfg. Co., Buffalo, New York.

Motors are currently being manufactured in 1/6, ¼, 1/3 and ½ hp. capacities, available in split phase or capacitor start types, with or without thermal overload protectors. Set in a steel case they stay rigid, produce less current loss, and are lighter in weight.

Use Free Postcard for More Details.

P113. Paint Mixer

A complete automotive and truck refinishing system, featuring a novel electric mixing and measuring machine, is made by R. N. Nason & Co., San Francisco.

This electric mixing and measuring machine, plus a set of color formulas and matching swatches, enables the automotive paint shop operator to match any factory color on automobiles and trucks produced from 1935 to 1947. All the paint shop operator requires is a stock of 21 Nason basic colors, lacquers and synthetics. With the Nason formulas, any amount from a half pint to a gallon can be mixed in a few minutes, resulting in perfect color matches, and a considerable saving in time.

Use Free Postcard For More Details.

P114. Brake Fluid

The Penetone Co., Tenafly, N. J., has developed a new hydraulic brake fluid which performs efficiently within a temperature range of 200 deg. F. to minus 40 deg. F.

It contains rust inhibitor to protect metal parts against corrosion; it remains chemically stable after prolonged use, properly lubricates the working parts of the brake system, and does not swell rubber parts, according to the company.

Use Free Postcard For More Details.

P115. Metallizing Gun

The Vande Mfg. Co., Chicago, has introduced a new metallizing gun which is said to provide faster and more thorough application of metals such as steel, aluminum, zinc, lead, bronze, copper, nickel and others.

The gun eliminates backfire. Its nozzle incorporates a new development of mixing the gas and oxygen at the point of combustion. Each wire nozzle is specifically designed to provide the exact volume for the gas used: acetylene, propane, or other gas. No air cap adjustments are needed. Another feature is the finger-tip turbine control.

Use Free Postcard For More Details.

P116. Flux-Coated Rod

A new color-matching flux-coated torch welding rod known as "EutecRod 14 FC" has been announced by Eutectic Welding Alloys Corp., New York. This rod develops a tensile strength of 48,000 psi in the weld deposits, bonding at 950-1400 deg. F., with a remelt temperature of 2200 deg. F. Its coefficient of expansion is the same as that of gray cast iron, and its hardness is approximately 190 Brinell, producing welds that are fully machinable. It is designed specifically for all types of gray or alloy cast iron and to eliminate the uncertainties

and delays of manual fluxing when welding stressed cast shapes.

Use Free Postcard for More Details.

P117. Ozone Machine

Automotive Products Div., American Associates, Inc., Philadelphia, announces an "amOZONer," an ozone machine which operates on ordinary 110-volt alternating current to purify the air in a working area up to 6000 sq. ft. It is especially adaptable to garages, terminals and other enclosed spaces where fumes of gasoline combustion are prevalent.

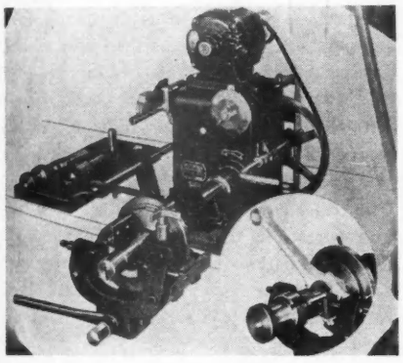
Use Free Postcard For More Details.

P118. Bearing Sizer

Sunnen Products Co., St. Louis, Mo., has brought out a precision bearing sizer with many new features.

This machine bores main or rod inserts, plain or flanged. It bores inserts in or out of the rod, and semi-finished babbitted rods.

One of the most important features of this new sizer is the automatic operation which frees the operating during the boring operation. The bearing is loaded, the machine started—boring is automatic, and the machine shuts off when the job is done.



New design of carriage of insert holders permits fast change-over from rod to insert work and vice-versa. Loading time is speeded by the use of a new quick-action clamp. The new type insert holder permits boring two narrow inserts at one time.

Use Free Postcard For More Details.

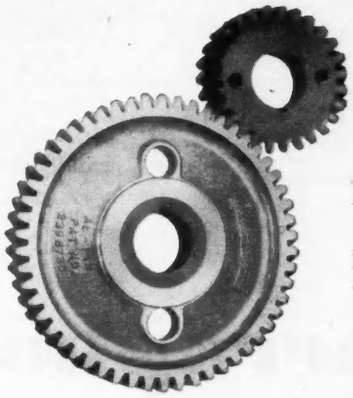
P119. Otis Proving Stand

The first of the Otis Elevator Company's new Proving Stands—chassis dynamometers designed for scientific checking of automotive performance—has been installed by Burris of Essex County, Inc., Lincoln-Mercury sales and service agency in Newark, N. J. Shown here, with the instrument panel of the Proving Stand, are (left to right) Charles A. Burris, president of Burris of Essex; Fred V. Cluis, Newark district manager for the Otis company, and George L. Schaefer, engineer, and superintendent of service for Burris. Mr. Schaefer holds the pushbutton control box operated by the mechanic checking car, truck or bus performance.

Use Free Postcard for More Details.

P120. Timing Gear Sets

The Hoof Products Co., Chicago, has supplemented its line of metal and silent timing gears with the recently developed Hoof Aluminum-Steel Matched Timing Gear Set.



The special alloy used in making the aluminum cam gear has unusual strength and bearing properties, and is not affected by engine heat or subject to corrosion resulting from chemicals in lubricants, according to the company.

The gears are crown shaved in matched sets for accuracy with a finish similar to tooth grinding. A steel hub is permanently bonded to the aluminum gear to absorb shock and vibrations. For protection of the gears before they are installed the tooth surface is heavily coated with plastic.

At present the sets are made to fit Chevrolet, Ford V-8 (bolt-on), GMC, and Hudson engines, with Studebaker to be added very soon.

Use Free Postcard For More Details.

P121. Light Switches

The new "Thru-Dash" and "Clamp-On" Switches developed by Niehoff & Co., Chicago, for heater, headlight and fog light manipulation have precision and machined fittings, heavy steel boxes with phenolic terminals and a 20 amp. fuse to assure positive connection and jam-free performance.

Various models are available for both push-pull and rotary "on and off" action.

Use Free Postcard for More Details.

P122. Brake Booster

A new Rocket Hydraulic Brake Booster designed to step up the efficiency of automotive brakes and increase the range of driving safety and driving comfort has been developed by Reaume, Kerkling Co., N. Hollywood, Cal.

Made of Anodized Duralumin, the booster is a sturdy, thick-walled cylinder measuring slightly under 6 in. overall in length and under 2 in. in diameter. The unit is installed between the master cylinder and brake lines, and involves no change in the hydraulic engineering of the vehicle.

The booster is said to increase braking efficiency under all road, weather and temperature conditions; helps equalize braking effort; prolongs the life of master cylinder and brake linings.

Use Free Postcard for More Details.

P123. Voltage Tester

Ideal Industries, Inc., Sycamore, Ill., announces a new Voltage Tester for testing continuity of circuits (AC or DC), 110 to 550 volts AC, 110 to 600 volts DC, blown fuses, grounded side of line, grounded side of motor or appliance, excessive leakage to ground, frequency (25 or 60 cy.) and DC polarity.

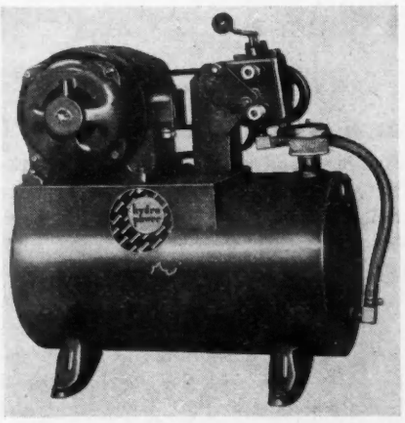
Indications are by a solenoid indicator and a neon test lamp; each operates independently of the other. Securely anchored 2 in. leads are brought out through top of case, which makes it easy to handle and easy to read.

Use Free Postcard For More Details.

P124. Hydraulic Power

A compact, portable hydraulic power unit capable of supplying three gal. per minute at 1000 psi is announced by Hydro-Power, Inc., Springfield, Ohio.

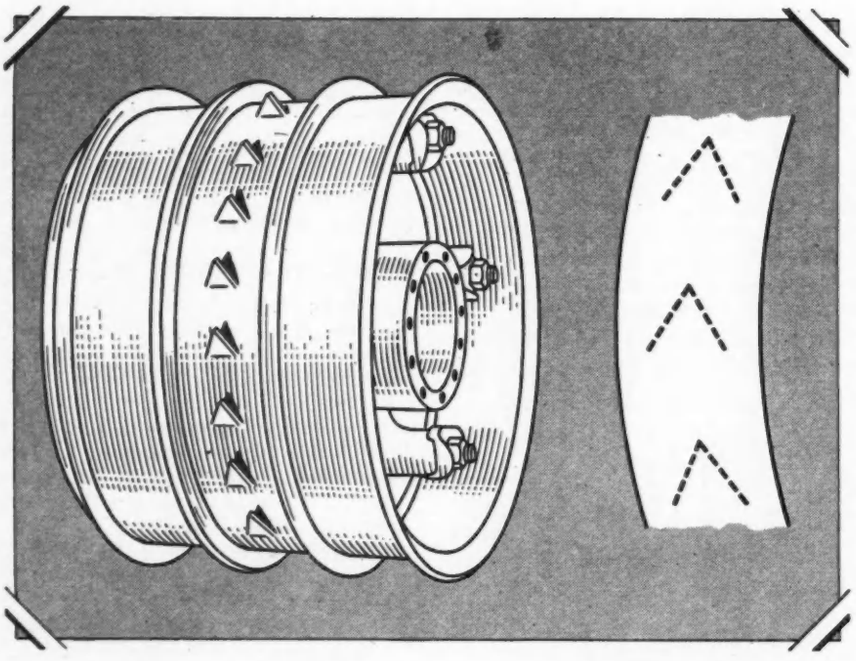
Dubbed the "Paul Bunyan, Jr.," the new unit can be quickly and easily turned to the operation of such equipment as hydraulic wheel pullers, shaft extractors, portable elevators, arbor presses, broaching tools, pipe benders, remote-control lifting jacks, chip balers, vises and clamping tools, etc.



The unit includes in an integral structure a 17 gal.-storage tank with foot mountings, an electric motor, V-belt connected gear pump, and 4-way operating valve. Weighing approximately 290 lb. when sup-

(TURN TO PAGE 142, PLEASE)

Scrapbook of Practical



AIR SCOOP FOR DUALS

When heat measurements indicated high temperatures in the area between dual tires, Campbell's 66 Express, Springfield, Mo., cut V-shaped slots in the steel spacer between the dual tires with a cutting torch. The point of the V-shaped cut was raised slightly to form an air scoop. The raised V's act as blades of a fan and force air through the slot beneath the V. William T. Royston, maintenance superintendent, said early checks indicated that heat was reduced to about the temperature of the outside of the dual and that all spacers used in the fleet were being "air-conditioned."

REMOVABLE TRUCK BODY

Designed and patented in 1941 by the Belknap Hardware & Mfg. Co., Louisville, this ingenious time- and labor-saving body enables each of the company's Mack trucks to do the work of several equipped with conventional bodies. The castered body, in the shape of a large freight box, can be rolled on or off the truck by means of the winch, while a hydraulic hoist at the rear elevates the channel steel track to clear any loading dock. Dock personnel perform the only hand operation involved — the attaching and detaching of the winch cables. All other action is controlled from the cab, with power supplied by a power takeoff.

Air Scoops in Spacer Cool Dual Wheels

Removable body is winched off at dock

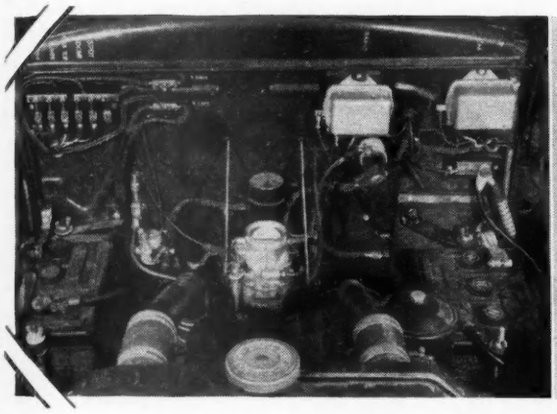
Dual generators supply power for radio

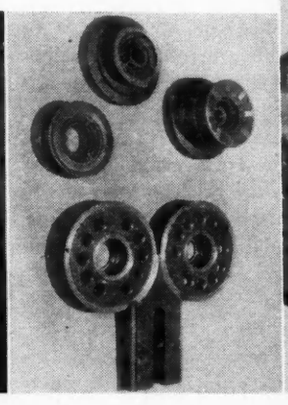
Utility table cut out for rear-end work

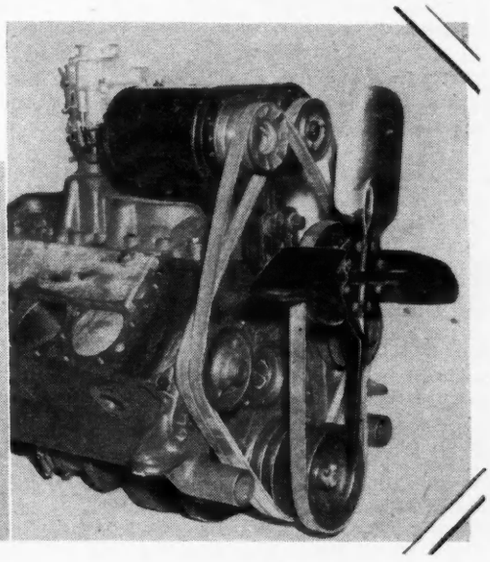
Small trailer wheel gives access to shop

LAST MONTH CCJ began its new Scrapbook feature designed to keep readers abreast of the so-called "little things" that can so often make big differences in a fleet operation. Five more ideas are presented here; others will follow in subsequent issues. All have been noted by CCJ correspondents and editors in their never-ending contacts with fleet operators in all parts of the country. All are isolated examples of good fleet management, too small in themselves to warrant feature articles but which grouped together, form good reading.

Fleet Practices

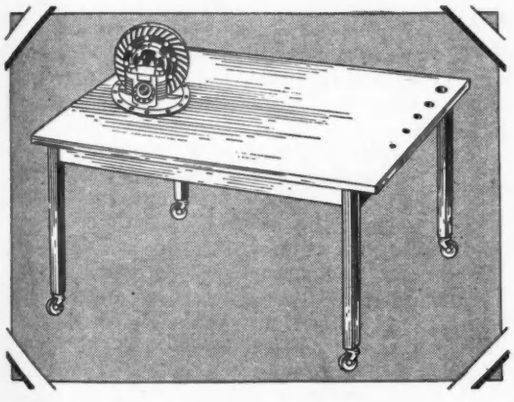






▲ SIAMESE TWIN GENERATORS

That's what Buffalo Niagara Electric Corp. calls this twin generator installation for Ford V-8. It has proved to be a very satisfactory and very economical way of stepping up power output to meet the load imposed by two-way radio equipment. Except for the bracket and double pulleys (center), made in the company's own shop, all parts are standard Ford accessories. These include the generators (right), batteries and regulators (left). Each set works independently of the other and one is used for regular equipment, the other exclusively for radio. Note also the clearly identified fuse block on the front of cowl.

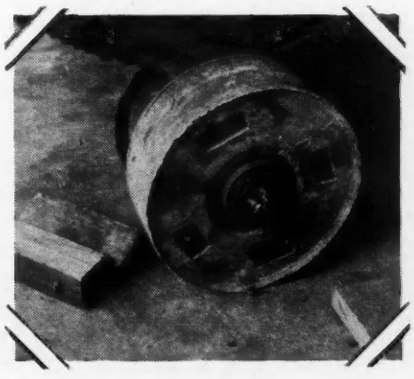


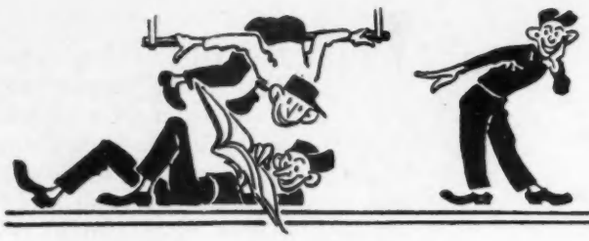
▲ SHOP UTILITY TABLE

Shop personnel of Millman Lumber Co., Salem, Mo., have built a steel-top utility table that saves much time. It's about five feet square, has four strong legs with casters. The top has an 8-in. round hole for handling rear-ends, the driveshaft end projecting through the hole. In the other end several holes from ⅛ to 1 in. have been drilled for punching operations. In use, the table gives ample work surface, is easily pushed to any place in the shop and is strong enough to handle any loads put upon it.

SMALL TRAILER WHEEL ▶

Doors leading into the paint and woodworking shops of Detroit Creamery's Gibson Street garage are too low to admit high trailers equipped with regular wheels and tires. To overcome this a number of small wheels 20 in. in diameter were built out of discarded wheels, rims and hubs. These were welded to a heavy-gage steel plate which makes up the face of the wheel to form a single permanent unit. These auxiliary wheels are bolted to the axle, slip on and off like any ordinary wheel.





LAUGH IT OFF

"I'm glad to find you as well as you are," said the old friend of the fleet operator. "Your great success hasn't changed you."

"Well," replied the candid trucker, "it has changed me in two ways. I'm now 'eccentric' where I used to be impolite, and 'delightfully witty' where I used to be rude."

C C J

Alf, the London butcher, hung a huge sign in front of his place of business: "We are sausage purveyors to His Majesty, the King."

The next day, Bill, his rival across the street, hung out an even larger sign than Alf's, reading: "God Save the King."

C C J

The young personnel clerk and his new girl friend were standing at her doorway at the end of the first date. She had resisted his affectionate advances all evening successfully but finally relented by granting him a gentle good night kiss.

"That's your award for being a gentleman," she murmured.

"For all my wasted labors," he muttered, "that's no award — just workman's compensation."

C C J

A highway driver was forced to stay in a small town overnight because of a heavy wind and rainstorm. While looking out the window of the local all-nite restaurant, he said to the waitress, "My, this certainly looks like the flood."

"The what?" she asked.

"The flood. You have read about the flood and the ark landing on Mount Ararat, surely?" he questioned.

"Gee, mister," she answered, "I ain't seen a paper for four weeks."

C C J

A mechanic off duty rushed into a drugstore and asked the pharmacist what to do to stop hiccups. His answer was a slap in the face.

Shocked and angry, the man demanded an explanation for such action.

"Well," replied the druggist, grinning, "you haven't any hiccups now, have you?"

"No, but my wife, out in the car, still has them."

C C J

"I can eat more beans than you can any day!" proclaimed the Shop Foreman.

"What are you trying to do—steal my thunder?" asked the Maintenance Superintendent.

C C J

"Is the boss busy with his secretary just now?"

"Yeah, he's up to her knees in work."

Uncle Ephraim, aged darky who has retired from his labors to sit upon his shady veranda and watch the world go by, sometimes gives voice to a homely observation.

"Mandy," he said to his wife the other day, "I has noticed one big difference twixt men and women."

"Whut's dat?" asked Mandy.

"Jes' dis," answered Uncle Eph; "a man'll gib two dollars for a one dollar artickle dat he wants, an' a woman'll gib one dollar for a two dollar artickle she doan want."

C C J

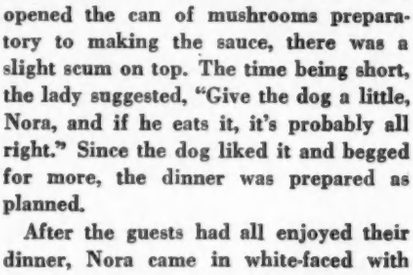
The wife of the tank fleet operator, wishing to return the kindness of several of her friends, invited them all to dinner. She planned to give them a mushroom steak dinner. When Nora, her cook, opened the can of mushrooms preparatory to making the sauce, there was a slight scum on top. The time being short, the lady suggested, "Give the dog a little, Nora, and if he eats it, it's probably all right." Since the dog liked it and begged for more, the dinner was prepared as planned.

After the guests had all enjoyed their dinner, Nora came in white-faced with the dessert and whispered tragically to her mistress, "Ma'am, the dog's dead." There was just one thing to do and the tank fleet operator's wife did it.

Some time later when eight people were lying around in various states of recovery and the doctor had departed with his stomach pump, the lady thought wearily to ask, "Nora, where's the poor dog?"

"On the front steps, Ma'am, where he lit after the car hit 'im."

C C J



A hillbilly was brought to court after a fight. "Tell your story," demanded the judge.

"Well, I was in a telephone booth, talking to my gal, proposin' marriage," explained the hillbilly, "when this man here suddenly wants to use the telephone. He opens the door, grabs me by the neck and throws me out of the booth."

"Then you got angry?" asked the judge.

"Yes, sir. But I didn't get really angry until he grabbed my gal and threw her out, too."

C C J

Mistress: "I'm glad to hear you're engaged Lizzie; when are your nuptials coming off?"

Lizz: "On our wedding night, and not a day befo!"

C C J

The young man who was throwing his life (and his money) away on strong drink received a call from his worried father. The father took the young man to the top of the hill overlooking Lexington, Kentucky.

"Look down there at those lights," said the father. "Those are distilleries. They are making whiskey . . . more than you can drink. Try to get that into your head."

The young man looked down into the valley, thought a minute, then replied: "Well, anyway, I've got 'em working nights."

C C J

All the hotels were crowded. Not a room any place. The long distance van driver was desperate. He had to get some restful shut-eye to be in condition to pick up a certain load at 8:00 a. m. the next morning. As a last resort he stopped in a drug store and bought some burnt cork which he applied to his face and hands. Then he proceeded to the leading Negro hotel and registered, leaving a call for 6:00 a. m.

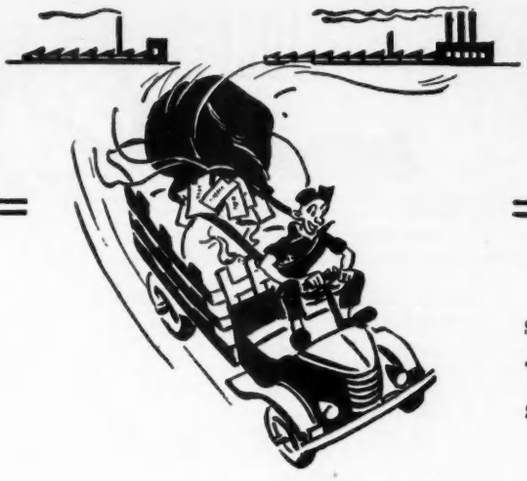
Next morning he was called late and had to rush to the diner nearby, forgetting the blackened condition of his face and hands. Entering the diner he was stopped by a waiter. "Look here fella," said the waiter, "this diner is for white folks."

"I'm a white man," hastily replied the van driver, rubbing at his face. "Look at my chest," he continued, unbuttoning his shirt front. Glancing down as he pointed, to his dismay he discovered that his chest was also black.

"My Gawd!" he cried, "they woke the wrong man."

Resume Work

DETROIT DISPATCH



Separate Truck Service

Bonded Bonanza

Gas Squeeze for Some

Steering Switch

Tire Abrasives

Steel for Europe

Separate Truck Service

A comparatively new but rapidly growing development in the truck sales field is the establishment of separate truck sales buildings by Ford, Chevrolet and Dodge dealers holding car and truck franchises. Despite various rumors, none of these companies grant an exclusive truck franchise, but in every case it is tied in with a franchise covering passenger cars. All three companies report they have many dealers throughout the country who have either put up a new building on the same property as their passenger car sales facilities, or have a separate building nearby. Some locate truck sales units in a different part of the city. Such separate facilities have very definite advantages both to the dealer and the truck operator. The dealer can locate in an area closely adjacent to a concentration of truck users. Truck operators on the other hand are encouraged to bring their trucks in for service without having to compete for space with passenger car customers. Also many truck owners like to have mechanics who are specially trained on truck work to service their units. By concentrating on truck service exclusively in one establishment, the dealer is in a better position to compete with factory branches maintained by competitors. Ford, Chevrolet and Dodge discounts, however, have not been altered in the case where an exclusive truck facility is established.

Bonded Bonanza

Watch for a new development in the field of bonded brakes that will greatly simplify the replacement problem. It is understood that one manufacturer is working on a quick detachable steel ring which is bonded to the lining. The ring is easily locked to the shoe without removing the brake assembly. It is said that the development will make possible a relining job in one-third the time normally required. Bonded brake linings are considered a certainty to replace the conventional rivited fastenings on passenger cars and light trucks, but their use on heavy equipment still is problematical.

by LEN WESTRATE
CCJ Detroit News Editor

Gas Squeeze for Some

Many large operators in the East and Middlewest are concerned over the imminent gasoline shortage. Many report that because of reduced allocations, which appear to be directed at truck fleet accounts, they are being forced to buy fuel while on the highway at retail rates. Currently gas is selling in the middlewest at 25.5 cents a gallon and 27.5 cents for ethyl.

IHC Price Increase

Price cuts announced by International Harvester Co. last March apparently were too good to be true for too long. The company has announced that because of increased costs it has been compelled to raise prices of its light and medium weight trucks by 1.9 to 4.9 per cent. Prices of heavy-duty trucks, however, remain unchanged.

Chevrolet Car Changes

Reports in Detroit say that Chevrolet will bring out its 1948 model passenger car late this month. The car will not be greatly changed either mechanically or in styling, the principal appearance alteration being a large vertical bar in the center of the grille. Chevrolet, like Ford, is known to to be working on an automatic transmission of the torque convertor type, but it is not expected to be ready for introduction this year.

Steering Switch

An interesting development has been noted in the steering hookups of the new Ford and Dodge truck models. Ford which previously has used cross-arm steering is changed to fore-and-aft steering in its 1948 models. Dodge on the other hand previously used fore-and-aft, but now has adopted the cross arm linkage. Neither company has any particular comment to make except that the particular type they are using fits better into general design of their product. Mechanics who service the new trucks will not be any happier about the accessibility than they have been about the similar models announced by other companies which feature high massive sheet metal work surrounding the engine compartment.

Tire Abrasives

Tire manufacturers have been giving considerable thought to development of a tire tread that will provide better footing on snow and ice. They have available an abrasive type rubber camelback which can be applied by recap processors. The material is especially compounded and contains coarse abrasive particles to give what is known as "sandpaper traction." Treadwear, however, is faster than with ordinary compounds. A recent survey shows that tire chains still are the best means of providing safe traction on snow or ice. It was found that chains reduce braking distances on ice or snow from 45 to 80 per cent.

Steel for European Trucks

According to the Harriman report, European manufacturers plan to build about 1,175,000 trucks during the four years 1948 through 1951. That would amount to about 294,000 a year in contrast to the 1,300,000 built in this country in 1947. The report states that the committee believes the truck building program is not excessive and recommends that steel for it be made available. It also asks that consideration be given to the importation of some finished trucks in 1948 and 1949 to reduce the strain on European transport facilities.

Special Taxes Hit New High

Special taxes against trucks hit a new high level last year, totalling up to about $885 million, or 30 per cent of the $2.9 billion collected by federal, state and local agencies in special motor vehicle taxes. Of the truck tax total an estimated $300 million was in the form of federal excises.

CCJ QUIZ

by ROBERT F. BAHL

Recently, *Forbes* Magazine polled the nation to determine the "Fifty Foremost Business Leaders" of today. Naturally, the automotive industry was well represented in the final selection. We've picked out 10 men who are associated in one way or other with autos and trucks. Your task is to identify these men from 15-second sketches. All the correct answers appear in the list at right, plus some others just to make it tough for you. If you want to make the game even more interesting, try to name the company each one is connected with. 70 is fair, 80 good, 90 excellent and 100 makes you a leader in the quiz business. Answers on page 93.

1.

One of the leading exponents of capitalism, he heads a company that has never had a strike. Starting as an auto salesman for a local dealer, he rose to the top of one of the "independents" in the auto business. He has been chairman of the Committee for Economic Development since it started in 1942.

He is .....

2.

Famous grandson of a more famous grandfather, he is the youngest on the list of business leaders. At 30 he rules a vast automotive empire.

He is .....

3.

This man, too, had a famous grandfather. In fact, two of them. As every schoolboy knows (question mark), his grand-dad invented the reaper in 1833. His other grandfather was John D. Rockefeller.

He is .....

"Well, Why don't you watch where I'M going?"

You'll find all the correct answers somewhere on this list:

John D. Biggers
Ward M. Canaday
John L. Collyer
Benjamin F. Fairless
Henry Ford II
Harvey S. Firestone, Jr.
B. F. Goodrich, Jr.
Paul G. Hoffman
Eugene Holman
Henry J. Kaiser
K. T. Keller
Charles F. Kettering
William S. Knudsen
Fowler McCormick
Charles W. Nash
W. A. Olen
E. V. Rickenbacker
Nelson Rockefeller
Alfred P. Sloan, Jr.
Charles E. Sorenson
C. E. Wilson

4.

People who live in glass houses . . . make more business for this man. So does the automotive industry, which is the largest user of sheet glass.

He is .....

5.

Whatever he does, he does in a big way, whether it be roads, dams, bridges, ships or automobiles. The war's most spectacular producer, he is now at Willow Run proving that a newcomer can make a go of it in the automotive field.

He is .....

JOBSERVATIONS

You can never reach the top of the ladder with your hands in your pockets.

★ ★ ★

It is not the hours you put in your work, but work you put in your hours.

★ ★ ★

Beaten paths are only for beaten men.

★ ★ ★

If you growl all day, it's only natural to feel dog-tired at night.

★ ★ ★

Success is the ability to get along with some people and ahead of others.

★ ★ ★

Most of the stumbling blocks people complain about are under their hats.

6.

He helped keep America's trucks rolling at the most critical period of our history through his work in developing synthetic rubber. Once a shipyard worker, he is now at the helm of one of the Big Four in the rubber industry.

He is .....

7.

A big man from our biggest state, he directs the world's biggest oil enterprise. In his spare time he grows watermelons on his Connecticut farm.

He is .....

8.

Although he heads one of the "Big Three," he still likes to describe himself as a "machinist by trade." This Pennsylvania Dutchman came to the top via the long, hard way, starting as a mechanic.

He is .....

9.

This man is following in his father's footsteps . . . or should we say tire treads. He has continued unabated his father's fight that "America should produce its own rubber." He now heads the famous tire and rubber company that bears his name.

He is .....

10.

An engineer all his life, he is now president of the greatest assemblage of companies the world has known. His first real assignment was to design an automobile starting motors for Westinghouse Elec. & Mfg. Co. back in 1909.

He is .....

"Ok, Ok, We'll deduct 5c from your fine!"

CORRECT Application of Motor Trucks

Eight vital steps in the selection of the right vehicle for specific service requirements and economical operation

STEP 7

Selecting the

Correct Transmission

Various Factors to be Considered in Selecting the Correct Transmission . . . Principal Types of Transmissions . . . Checking Gross Ability in First Gear . . . Gross Ability Chart for Normal Operation . . . Auxiliary Gearing Types

(Copyright 1947, The White Motor Co., Cleveland)

IN AN IDEAL TYPE OF TRUCK OPERATION, from the lone standpoint of truck efficiency and economy, would be one where the truck drones over the road mile after mile at a fixed speed. The transmission could be omitted except for starting. And without the transmission the economy would still be high because engine speed could still be constant. However, such a truck would be limited to a very narrow span of performance. The constant truck speed would be variable only by the effect that moving the accelerator up and down has on the throttle opening.

Adding the transmission to this truck widens the span of performance. A correctly applied transmission provides the truck with a flexibility in speed and pulling ability much greater than could be obtained by varying engine speed and throttle opening. Through the gear ratios, engine speed is turned into greater ability at a lower road speed, or into more hill-climbing ability at lower road speed, depending on which transmission ratio it becomes necessary to use.

Also, the engine speed is kept as constant as possible to give the greatest fuel economy. This fuel economy resulting from constant engine speed, has been a goal of two previous steps—in the application of the engine and the axle ratio. A transmission incorrectly applied, with the wrong range of speeds, will limit the flexibility of the truck. Fuel economy will be lost to such a truck, for it will be operating in speed ranges and throttle ranges that are less efficient for the engine. The method here on the application of transmission is a guard against such loss of economy.

Principal Types of Transmissions

SEVERAL different types of transmissions are available to meet various operating problems. The three principal types in truck service are: Four speeds forward and one reverse—direct-in-fourth speed; five speeds forward and one reverse—direct-in-fifth sped; five speeds forward and one reverse—direct-in-fourth speed. Typical set of ratios for each are:

1. Four speeds forward and one reverse, with the fastest or fourth speed being direct (that is, a 1.0 to 1 ratio).

TYPICAL RATIOS:	First speed	6.4 to 1
	Second speed	3.5 to 1
	Third speed	1.8 to 1
	Fourth speed	1.0 to 1 (direct)
	Reverse speed	6.4 to 1

These ratios are the number of revolutions the engine makes for one revolution of the propeller shaft leading to the rear axle. For example, in the 1.0 to 1 ratio, each time the engine crankshaft makes one revolution, the propeller shaft makes one revolution. In first gear, each time the crankshaft makes 6.4 revolutions, the propeller shaft turns over once.

2. Five speeds forward and one reverse, with the fastest or fifth speed being direct.

TYPICAL RATIOS:	First speed	7.88 to 1
	Second speed	4.46 to 1
	Third speed	2.46 to 1
	Fourth speed	1.48 to 1
	Fifth speed	1.00 to 1 (direct)
	Reverse speed	7.88 to 1

FIG. 1

DATA BOOK

MODEL ABC

ABILITY AND ROAD SPEED

With 000 Rear Axle and 10.00-20 Tires

Axle Ratio	Transmission Speed	Transmission Ratio	Axle and Trans. Ratio Total	Standard Engine — 362 Cu. In. Displacement: 24,000 G.V.W. At Max. Torque	24,000 G.V.W. At 2800 RPM	22,000 G.V.W. At Max. Torque	22,000 G.V.W. At 2800 RPM	20,000 G.V.W. At Max. Torque	20,000 G.V.W. At 2800 RPM	Optional Engine — 386 Cu. In. Displacement: 24,000 G.V.W. At Max. Torque	24,000 G.V.W. At 3000 RPM	22,000 G.V.W. At Max. Torque	22,000 G.V.W. At 3000 RPM	20,000 G.V.W. At Max. Torque	20,000 G.V.W. At 3000 RPM	*Miles Per Hour: At Max. Torque	At 2800 RPM
551B TRANSMISSION — 5-SPEED 4TH DIRECT																	
5.67	5th	.788	4.47	2.8	2.3	3.0	2.5	3.3	2.8	3.1	2.4	3.4	2.6	3.7	2.9	36.0	72.0
	4th	1.00	5.67	3.8	3.1	4.1	3.4	4.5	3.7	4.1	3.1	4.5	3.4	5.0	3.7	28.4	56.8
	3rd	1.90	10.77	6.7	5.5	7.3	6.0	8.0	6.6	7.4	5.6	8.1	6.1	8.9	6.7	14.9	29.9
	2nd	3.97	22.51	14.0	11.6	15.3	12.6	16.8	13.9	15.6	11.7	17.0	12.8	18.7	14.1	7.1	14.3
	1st	7.00	39.69	24.8	20.4	27.0	22.2	29.7	24.4	27.3	20.5	29.8	22.4	32.8	24.6	4.0	8.1
6.29	5th	.788	4.96	3.1	2.6	3.4	2.8	3.7	3.1	3.4	2.6	3.7	2.8	4.1	3.1	32.4	64.9
	4th	1.00	6.29	4.1	3.4	4.5	3.7	5.0	4.1	4.6	3.5	5.0	3.8	5.5	4.2	25.6	51.2
	3rd	1.90	11.95	7.4	6.1	8.1	6.6	8.9	7.3	8.3	6.2	9.0	6.8	9.9	7.5	13.4	26.9
	2nd	3.97	24.97	15.6	12.7	17.0	13.9	18.7	15.3	17.2	12.9	18.8	14.1	20.7	15.5	6.4	12.9
	1st	7.00	44.03	27.5	22.6	30.0	24.6	33.0	27.1	30.4	22.8	33.2	24.9	36.5	27.4	3.6	7.3
7.14	5th	.788	5.63	3.5	2.8	3.8	3.1	4.2	3.4	3.9	2.9	4.2	3.2	4.6	3.5	28.5	57.1
	4th	1.00	7.14	4.7	3.9	5.1	4.2	5.6	4.6	5.2	3.9	5.7	4.3	6.3	4.7	22.5	45.1
	3rd	1.90	13.57	8.4	6.9	9.2	7.5	10.1	8.3	9.4	7.1	10.2	7.7	11.2	8.5	11.8	23.7
	2nd	3.97	28.35	17.7	14.5	19.3	15.8	21.2	17.4	19.6	14.8	21.4	16.1	23.5	17.7	5.6	11.3
	1st	7.00	49.98			33.8	27.8				25.8	37.4		41.1	30.9	3.2	6.4

SPEED	TRANSMISSION RATIO Direct in 4th	TRANSMISSION RATIO Direct in 5th	GROSS ABILITY At 2800 RPM 4th	GROSS ABILITY At 2800 RPM 5th	ROAD SPEED At 2800 RPM 4th	ROAD SPEED At 2800 RPM 5th
5th	.788	1.00	3.4	4.6	64.9	51.2
4th	1.00	1.48	4.6	6.4	51.2	34.6
3rd	1.90	2.63	8.9	11.4	26.9	19.5
2nd	3.97	4.46	17.2	19.4	12.9	11.5
1st	7.00	7.88	30.4	34.2	7.3	6.5

501B TRANSMISSION — 5-SPEED 5TH DIRECT																	
5.67	5th	1.00	5.67	3.8	3.1	4.1	3.4	4.5	3.7	4.1	3.1	4.5	3.4	5.0	3.7	28.4	56.8
	4th	1.48	8.39	5.2	4.3	5.7	4.7	6.3	5.2	5.8	4.3	6.3	4.7	6.9	5.2	19.2	38.4
	3rd	2.63	14.91	9.3	7.6	10.1	8.3	11.1	9.1	10.3	7.7	11.2	8.4	12.3	9.2	10.8	21.6
	2nd	4.46	25.29	15.8	12.9	17.2	14.1	18.9	15.5	17.4	13.1	19.0	14.3	20.9	15.7	6.3	12.7
	1st	7.88	44.68	27.9	22.9	30.4	25.0	33.4	27.5	30.8	23.1	33.6	25.2	37.0	27.7	3.6	7.2
6.29	5th	1.00	6.29	4.1	3.4	4.5	3.7	5.0	4.1	4.6	3.5	5.0	3.8	5.5	4.2	25.6	51.2
	4th	1.48	9.31	5.8	4.8	6.3	5.2	6.9	5.7	6.4	4.9	7.0	5.3	7.7	5.8	17.3	34.6
	3rd	2.63	16.54	10.3	8.4	11.2	9.2	12.3	10.1	11.4	8.5	12.4	9.3	13.6	10.2	9.7	19.5
	2nd	4.46	28.05	17.5	14.4	19.1	15.7	21.0	17.3	19.4	14.6	21.2	15.9	23.3	17.5	5.7	11.5
	1st	7.88	49.57	31.0	25.5	33.8	27.8	37.2	30.6	34.2	25.7	37.3	28.0	41.0	30.8	3.2	6.5
7.14	5th	1.00	7.14	4.7	3.9	5.1	4.2	5.6	4.6	5.2	3.9	5.7	4.3	6.3	4.7	22.5	45.1
	4th	1.48	10.57	6.6	5.4	7.2	5.9	7.9	6.5	7.3	5.5	8.0	6.0	8.8	6.6	15.2	30.4
	3rd	2.63	18.78	11.7	9.6	12.8	10.5	14.1	11.6	12.9	9.7	14.1	10.6	15.5	11.7	8.5	17.1
	2nd	4.46	31.84	19.8	16.2	21.6	17.7	23.8	19.5	22.0	16.5	24.0	18.0	26.4	19.8	5.0	10.1
	1st	7.88	56.26	35.1	28.8	38.3	31.4	42.1	34.5	38.9	29.2	42.4	31.8	46.6	35.0	2.8	5.7

NOTE: Deduct 1.25 from Ability for road resistance of the best type of concrete and brick roads.

* For Road Speed with 100A Engine at 2800 RPM, multiply above figures by 107%

Fig. 1. Reproduction of a page from a truck manufacturer's data book which furnishes needed information on the total gear reductions and gross ability in low gear on each unit. The table in the center is inserted to show comparison of ability and road speed using fourth-direct and fifth-direct. Gross ability when using the overdrive is 3.4, compared to 4.6 in fifth-direct. The road speed, when using the overdrive is 64.9, compared to 51.2 in fifth-direct)

3. Five speeds forward and one reverse, with the next to the fastest or fourth speed being direct. (Overdrive type transmission in fifth speed.)

TYPICAL RATIOS:
- First speed.....7.00 to 1
- Second speed....3.50 to 1
- Third speed.....1.91 to 1
- Fourth speed....1.00 to 1 (direct)
- Fifth speed.....78 to 1 (overdrive)
- Reverse speed 7.00 to 1

Which Type for the Job?

THE transmission with four speeds forward and one reverse has a range wide enough to cover the needs of many light trucks in city operation with various truck speeds and under different pulling or accelerating conditions and grades. Transmissions with five speeds forward and one reverse are used mainly for medium- and heavy-duty truck operations. The application of these larger transmissions must be based on more careful choice of the type of transmission (whether direct-in-fifth or direct-in-fourth) and the gear ratios.

The five-speed transmission with direct-in-fifth is the transmission most generally used for normal conditions.

The transmission with five speeds forward and the direct speed in fourth gear (overdrive type of transmission) has a number of special uses centering about the fifth gear or overdrive gear. This overdrive gear is a high gear with a ratio that permits the propeller shaft at the rear of the transmission to revolve faster than the engine crankshaft. For example, in the preceding list of typical ratios, the fifth speed (or overdrive) is .78 to 1. So that every time the crankshaft makes .78 of a revolution, the propeller shaft has already made one full revolution.

The transmission with overdrive is used to best advantage in the following special kinds of service:

1. EXTRA HIGH SPEED OR NORMAL SPEED WITH LIGHT LOAD. There are many types of service where these conditions are part of the daily job. The overdrive transmission can get higher road speed and keep engine rpm within the most economical range. Or, the overdrive can give normal speed with lower engine rpm, also aiding economy.

2. EMPTY RETURN TRIPS. Many delivery operations require the vehicle to return without a load. On the return trip

the engine has an excess of power. With the overdrive, this excess can be turned into higher truck speed—if the faster trip is practical or economical to the owner. For example, a truck with 45 mph speed in direct drive at 2600 rpm, would operate in overdrive at approximately 56 mph—11 miles per hour faster than direct drive.

3. LIGHTER LOADS AND NORMAL SPEED. Many delivery operations have lighter loads on the return trip with an excess of power as a result. But the higher truck speeds are not practical. An overdrive transmission will allow the engine to operate at a somewhat reduced rpm which saves fuel and increases engine life, without lowering truck speed. For example, a truck with 45 mph speed in direct drive at 2600 rpm would operate at 45 mph in overdrive at only 2080 rpm.

4. HIGHER SPEEDS ON DOWN GRADES. In mountainous or hilly terrain and in some rolling country, long grades are sometimes encountered with comparatively easy curves. The truck has an excess of power under such conditions. With the overdrive transmission, the excess could safely be turned into higher than normal truck speeds and schedules improved.

These are the four conditions where the overdrive transmission will help bring out the best possible economy and performance from a truck. The choice of the transmission can be rested squarely on those conditions—if the axle ratio is correct. For if the axle ratio is correctly figured on the basis of the road speed the loaded truck is expected to constantly maintain in direct gear, then choosing the type of five-speed transmission is simplified.

Regardless of which transmission is selected, the axle ratio must always be selected so that the maximum road speed at full load on level road can be obtained in direct drive. This is fourth gear in the overdrive transmission and fifth gear in the direct-in-fifth. This means that the overdrive gear will not be used for fully loaded conditions on level road. It can only be used for returning empty or for lower-engine speed on downhill operation.

Checking Gross Ability in First Gear

GENERALLY in manufacturers' specifications (under the data on a particular truck model) are listed the available axle ratios, and a transmission that is recommended for each axle ratio. Or there may be two tables—one with the axle ratios and the available transmission of the fourth-direct type, and another table with the axle ratios and available transmissions of the fifth-direct type—so that after the axle ratio for the truck is figured, and the type of transmission decided on, the actual transmission can be selected from these tables. See Fig. 1.

Next step after the fleet operator has picked the actual transmission for the truck is a double check on the ratios in the transmission. Since the choice of the actual transmission was in conjunction with the total gear ratio, only the direct gear of the transmission has been considered. A question is raised at this point: Does the transmission have the required range of ratios in the lower speeds? Or, stated another way: Is the total gear reduction sufficient for the particular operation? The answer will come by checking the ability in the lowest speed, or first gear which is shown in the truck manufacturer's specifications.

Total gear reduction is the product of the lowest main-transmission-gear ratio and the rear-axle ratio and the lowest auxiliary transmission ratio, if one is used. The amount of the total gear reduction is needed—along with data on maximum horsepower, per cent efficiency, governed speed, gross weight and tire radius in inches—to use in this formula for gross ability in low gear:

$$\text{GROSS ABILITY IN LOW GEAR \%} = \frac{\text{max. hp.} \times 5{,}250 \times 12 \times \text{total gear reduction} \times \text{efficiency \%}}{\text{governed speed} \times \text{gross weight} \times \text{tire radius, inches}}$$

Some truck manufacturers publish the total gear reductions and gross ability in low gear among the data on each unit—as shown in Fig. 1. When the gross ability in low gear is calculated, either by formula or from the manufacturer's specifications, this figure should be compared with the requirements of the particular trucking operation. Or, the results can be compared to the figures in Table 1, *Gross Ability in Low Gear for Normal Operations.*

TABLE 1

GROSS ABILITY IN LOW GEAR FOR NORMAL OPERATIONS

Type of Service	Minimum Gross Ability in Low Gear
For level or slight grades in highway operations only	12%
For highway operation in hilly or mountainous terrain	16%
Trucks or tractors encountering steep grades 15% to 17%	20%
Dump trucks and construction trucks in bad going off the highway	30% and greater depending on conditions

As an example of how the gross ability in low gear is calculated, take a truck-trailer combination with a fifth-direct transmission: Ratio is first speed in 7.88 to 1 and a rear-axle ratio of 6.29 to 1. Total reduction is 7.88 times 6.29 equals 44.03 to 1.

The gross ability in the lowest gear may be found by using this total gear reduction figure, as shown in Example 1.

EXAMPLE 1

DETERMINING THE GROSS ABILITY IN LOW GEAR BY FORMULA

$$\text{GROSS ABILITY IN LOW GEAR \%} = \frac{\text{max. hp.} \times 5{,}250 \times 12 \times \text{total gear reduction} \times \text{efficiency \%}}{\text{governed speed} \times \text{gross weight} \times \text{tire radius, inches}}$$

Information Required:

Maximum hp.	134	Governed speed	2,800
Total gear reduction	44.03	Gross weight	53,000 lb.
Efficiency	90%	Tire radius, inches	20.0

$$\frac{134 \times 5{,}250 \times 12 \times 44.03 \times 90}{2{,}800 \times 53{,}000 \times 20} = 11.3 \text{ GROSS ABILITY IN LOW GEAR}$$

Gross ability in low gear can be readily obtained from the data book of the manufacturer

This example is assumed to be for a truck-tractor in normal highway service. According to Table 1, this type of service should have a gross ability in low gear of 12 per cent. Since the result of the calculations in Example 1 showed the gross ability in low to be 11.3 per cent, this transmission is satisfactory for the job. Had the fourth-direct transmission been used, the gross ability in low would have been less than the percentage necessary for the job, hence the selection of the fifth-direct transmission. In cases where minimums required become much greater, then additional gearing in the form of auxiliary transmissions should be considered.

Types of Auxiliary Gearing

NO OTHER form of transportation requires as much flexibility of performance as the motor truck. A truck may be loaded normally, or very lightly loaded, or sometimes even overloaded, and, at the same time, confronted with a mixture of level roads and extremely hilly country on the same run. Wide variations in road and traffic conditions further add to the demands on the flexibility of performance. As the use of motor trucks has broadened, and as their range has increased and their schedules stepped up, the demand for increased flexibility has grown. To meet this demand, the use of auxiliary gearing, in addition to the

standard transmission and rear-axle gearing, has gradually increased.

Auxiliary gearing can be added to the truck in two ways:

1. In one of several different kinds of auxiliary gear boxes.
2. In a two-speed axle.

Just how the auxiliary gearing differs is only a matter of design. The gearing may be in a box bolted on or built into the main transmission, or in a box bolted to the truck frame between the transmission and the rear axle (known as midship or split-propeller-shaft type of mounting), or the gearing may be part of the rear axle (known as the two-speed axle). For example, the auxiliary gearing in a short wheelbase truck may be added by a two-speed axle, since there isn't sufficient chassis length for the other types of gearing.

A number of examples of auxiliary gear boxes are commonly used with different gearings. For example:

1. Two speeds forward—direct and an overdrive.

TYPICAL RATIOS: First speed ....1.00 to 1 (direct); Second speed .. .75 to 1 (overdrive)

2. Two speeds forward—an underdrive and direct.

TYPICAL RATIOS: First speed ....1.38 to 1 (underdrive); Second speed ..1.00 to 1 (direct)

3. Three speeds forward—an underdrive, direct, and an overdrive.

TYPICAL RATIOS: First speed ....1.25 to 1 (underdrive); Second speed...1.00 to 1 (direct); Third speed.... .86 to 1 (overdrive)

OR: First speed.....2.14 to 1 (underdrive); Second speed...1.00 to 1 (direct); Third speed.... .69 to 1 (overdrive)

Application of Auxiliary Gearing

THE selection of auxiliary gearing—whether auxiliary transmissions or two-speed axles—in any application should be made on the basis of gear ratios and number of speeds available with the additional gears. Final choice for a specific operation depends on the total gear reductions which are needed to give the required degree of flexibility in performance.

This flexibility is of two types:

1. Performance required to start easily on extreme grades or in bad road conditions, as previously described in Table 1. This operation sometimes requires an auxiliary transmission with a very low-speed underdrive such as 2.62 to 1.

2. A larger number of closely and evenly spaced steps in over-all gear reduction to secure less variation in engine speed. By keeping the engine speeds constantly up near the top rpm, nearly maximum power will be available at all truck speeds. This makes it possible for trucks traveling over routes with varying grades to climb each grade in a gear that gives full performance of the engine at the best possible truck speed. Trip time can be shortened in this way for operations in hilly or mountainous terrain.

When this type of flexible performance is desired auxiliary transmissions with close or moderately close ratios are used. For example:

First speed .....1.25 to 1	or First speed .....1.495 to 1
Second speed .....1.00 to 1	or Second speed ....1.00 to 1
Third speed..... .86 to 1	or Third speed..... .75 to 1

Whichever auxiliary gearing gives the desired flexibility of performance should be selected. In some cases, the three-speed auxiliary will be needed (either underdrive or overdrive type), in others the two-speed auxiliary.

When using the two-speed axle for auxiliary gearing, they may be considered as either underdrives or overdrives. If the operation requires an overdrive, then one speed in the axle will match the over-all gear ratio in direct gear for the normal maximum operating speed of the truck. The other speed in the axle will be the overdrive gearing. (Remember the axle ratio was decided on in the previous step, Page 25.) For example, the over-all gear ratio selected was 6.36, which then becomes the axle ratio. Since the two-speed axle is going to be used as an overdrive, then 6.36 will be one speed in the axle—the slow ratio in the axle. The other ratio available in this axle is 5.5—a fast ratio, which would have an overdrive effect.

Summary of Step 7

THIS last choice of the right transmission completes the selection of the performance-determining units of the truck. The first performance unit selected was the engine, then the axle, and now the transmission. The responsibility for performance is carried mainly by correct application of these three.

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WASHINGTON RUNAROUND

Petroleum Roundup
FCC and Mobile Radio
Transport Dept. Unlikely
Tax Reduction Brighter
Brake Study Progress
1948 Traction Test

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(TURN TO PAGE 152 PLEASE)

standard transmission and rear-axle gearing, has gradually increased.

Auxiliary gearing can be added to the truck in two ways:

1. In one of several different kinds of auxiliary gear boxes.
2. In a two-speed axle.

Just how the auxiliary gearing differs is only a matter of design. The gearing may be in a box bolted on or built into the main transmission, or in a box bolted to the truck frame between the transmission and the rear axle (known as midship or split-propeller-shaft type of mounting), or the gearing may be part of the rear axle (known as the two-speed axle). For example, the auxiliary gearing in a short wheelbase truck may be added by a two-speed axle, since there isn't sufficient chassis length for the other types of gearing.

A number of examples of auxiliary gear boxes are commonly used with different gearings. For example:

1. Two speeds forward—direct and an overdrive.

TYPICAL RATIOS:
- First speed ....1.00 to 1 (direct)
- Second speed .. .75 to 1 (overdrive)

2. Two speeds forward—an underdrive and direct.

TYPICAL RATIOS:
- First speed ....1.38 to 1 (underdrive)
- Second speed ..1.00 to 1 (direct)

3. Three speeds forward—an underdrive, direct, and an overdrive.

TYPICAL RATIOS:
- First speed ....1.25 to 1 (underdrive)
- Second speed...1.00 to 1 (direct)
- Third speed.... .86 to 1 (overdrive)

OR:
- First speed.....2.14 to 1 (underdrive)
- Second speed...1.00 to 1 (direct)
- Third speed.... .69 to 1 (overdrive)

Application of Auxiliary Gearing

THE selection of auxiliary gearing—whether auxiliary transmissions or two-speed axles—in any application should be made on the basis of gear ratios and number of speeds available with the additional gears. Final choice for a specific operation depends on the total gear reductions which are needed to give the required degree of flexibility in performance.

This flexibility is of two types:

1. Performance required to start easily on extreme grades or in bad road conditions, as previously described in Table 1. This operation sometimes requires an auxiliary transmission with a very low-speed underdrive such as 2.62 to 1.

2. A larger number of closely and evenly spaced steps in over-all gear reduction to secure less variation in engine speed. By keeping the engine speeds constantly up near the top rpm, nearly maximum power will be available at all truck speeds. This makes it possible for trucks traveling over routes with varying grades to climb each grade in a gear that gives full performance of the engine at the best possible truck speed. Trip time can be shortened in this way for operations in hilly or mountainous terrain.

When this type of flexible performance is desired auxiliary transmissions with close or moderately close ratios are used. For example:

First speed	1.25 to 1	First speed	1.495 to 1
Second speed	1.00 to 1	Second speed	1.00 to 1
Third speed	.86 to 1	Third speed	.75 to 1

Whichever auxiliary gearing gives the desired flexibility of performance should be selected. In some cases, the three-speed auxiliary will be needed (either underdrive or overdrive type), in others the two-speed auxiliary.

When using the two-speed axle for auxiliary gearing, they may be considered as either underdrives or overdrives. If the operation requires an overdrive, then one speed in the axle will match the over-all gear ratio in direct gear for the normal maximum operating speed of the truck. The other speed in the axle will be the overdrive gearing. (Remember the axle ratio was decided on in the previous step, Page 25.) For example, the over-all gear ratio selected was 6.36, which then becomes the axle ratio. Since the two-speed axle is going to be used as an overdrive, then 6.36 will be one speed in the axle—the slow ratio in the axle. The other ratio available in this axle is 5.5—a fast ratio, which would have an overdrive effect.

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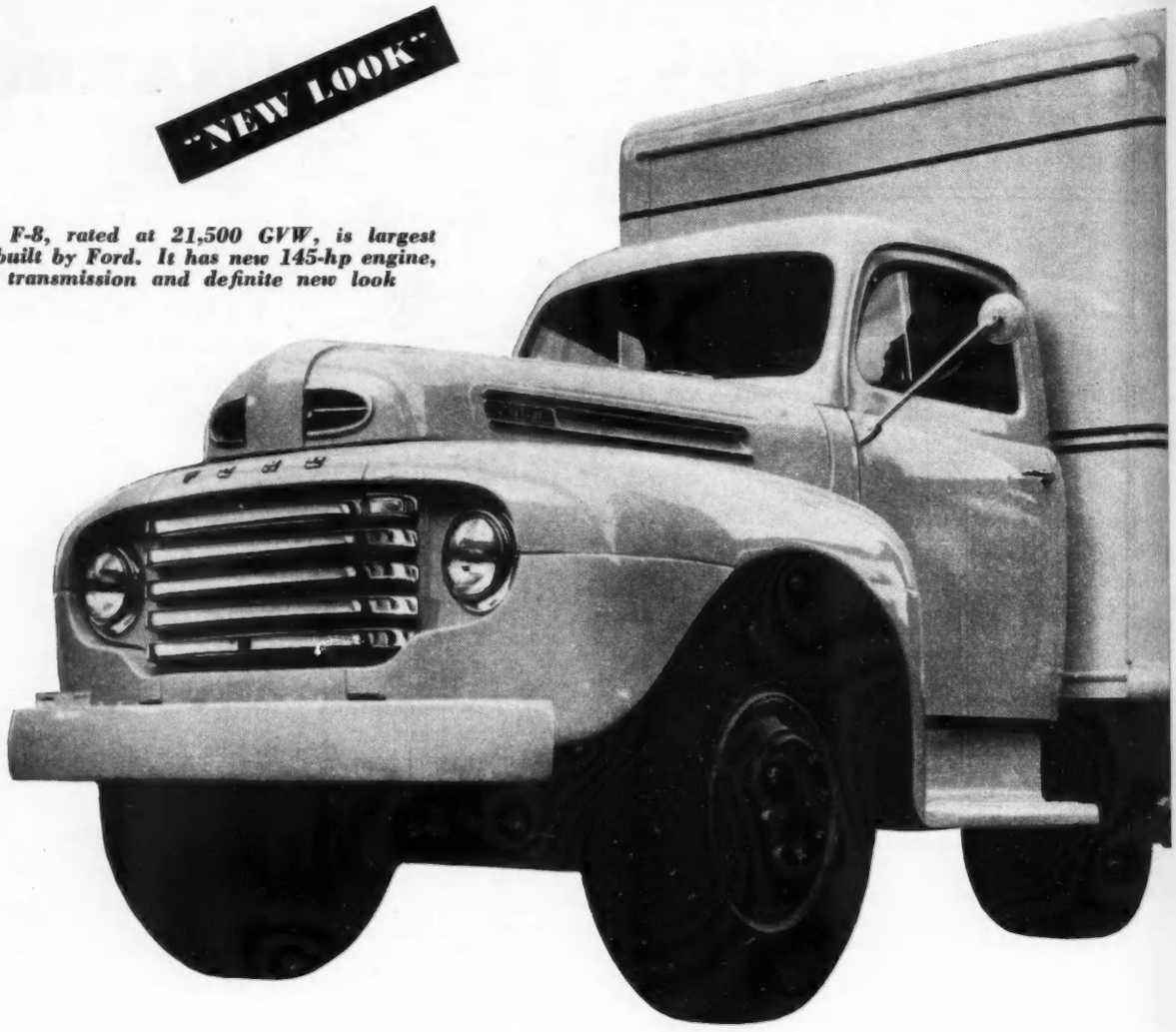
(TURN TO PAGE 152 PLEASE)

"NEW LOOK"

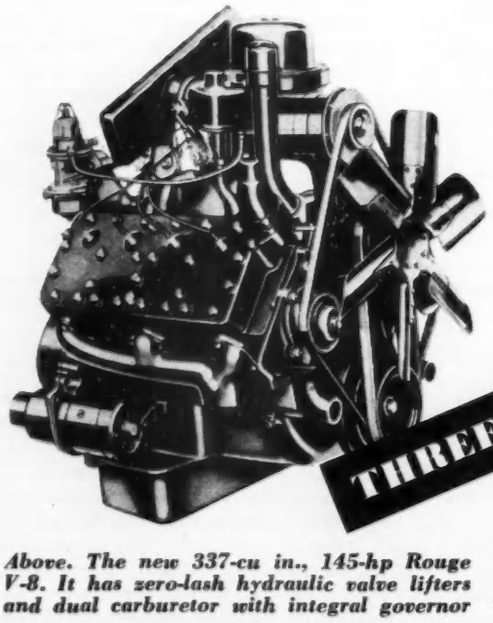


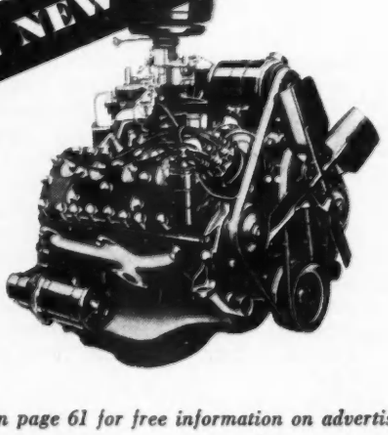
New series F-8, rated at 21,500 GVW, is largest truck ever built by Ford. It has new 145-hp engine, 5-speed transmission and definite new look

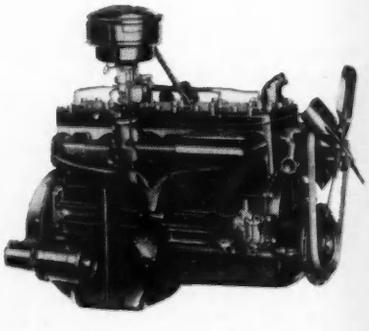
FORD for '48

Power options include new 145-hp V-8,

THREE NEW ENGINES



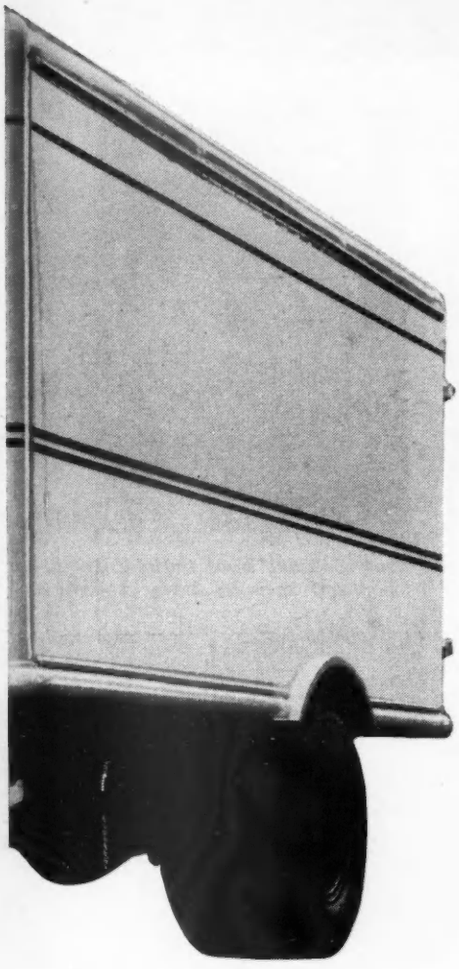




Above. The new 337-cu in., 145-hp Rouge V-8. It has zero-lash hydraulic valve lifters and dual carburetor with integral governor

Right. Improved 100-hp V-8 has many new features including gear-driven, vacuum-controlled distributor on top, coil adjacent

Far right. The completely redesigned six with distributor on left side, external oil pump on right and integral oil filter



Top. Series F-5 replaces old 1½-ton model, is available with either the new six or 100-hp V-8. Above. The series F-1 ½-ton pick-up

goes to 21,500 GVW

improved 100-hp V-8 and redesigned 95-hp. six. New cabs feature driver comfort

TWO NEW "extra-heavy-duty" models with maximum GVW ratings up to 21,500 lb., a brand new 145-hp V-8 engine with zero-lash hydraulic valve lifters and a modern but functional "new look" with added features for driver comfort carried throughout the line highlight the long-awaited 1948 Ford line. Supplementing this trio of innovations are such added attractions as the redesigned 95-hp six and 100-hp V-8 engines, a number of new cab features which put emphasis on driver comfort, numerous improvements throughout the chassis, and a new six-cylinder c-o-e series.

The line is divided into three categories: the "Light-Duty" Series F-1, F-2, F-3, F-4 with nominal ratings up to one-ton and GVW ratings up to 10,000 lb.; the "Heavy-Duty" Series F-5 and F-6 with nominal ratings of 1½-ton and 2-ton respectively and GVW ratings up to 16,000 lb.; and the "Extra-Heavy-Duty" series F-7 and F-8. Included in the "Heavy Duty" category are the F-5 c-o-e and the F-6 c-o-e Series. Basic data are shown in the accompanying table.

New 145-Hp V-8

THE new 145-hp 337 cu in. engine is unlike any engine previously offered by Ford. It is a 90-deg V-8 fitted with zero-lash hydraulic valve lifters and a dual concentric downdraft carburetor with all metering jets and passages in the center of the float bowl providing correct metering of fuel at all operating angles. An in-

(TURN TO NEXT PAGE, PLEASE)

Ford for '48...

(Continued from page 77)

teresting feature is the provision for a vacuum-type governor integral with the carburetor and having a separate engine-driven rotor control.

The distributor is mounted at the top rear of the engine and features a full-automatic advance entirely controlled by vacuum. It is of rugged design, said to give extremely long point life. The metal-clad coil is mounted directly adjacent to the distributor.

The eight-port, duplex, horizontal-plane intake manifold is integral with valve cover. Exhaust valves are of Silchrome with hard facing while exhaust valve seat inserts are of molybdenum chrome alloy. Small diameter removable-type valve guides are provided for good cooling and long life. Valve springs are shot-blasted and rust-proofed.

Cylinder blocks are of Ford alloy cast iron with controlled micro-finish cylinder walls. Cylinder heads are also of cast alloy iron with turbulent-type, high-compression combustion chambers. Compression ratio is 6.4 to 1. Aluminum alloy pistons have four rings each, the top compression ring being chrome-plated for better lubrication and longer cylinder life.

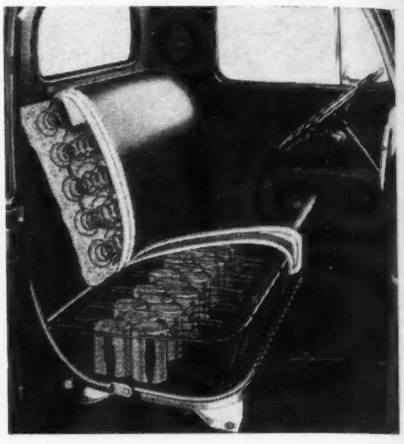
Crankshaft is of drop-forged steel with flame-hardened journals and fitted with a viscous-type vibration clamper. Main bearings are of the steel-backed replaceable-type with lining of special bearing alloy. Con rod bearings are steel-backed with a lining of copper-lead alloy.

The oil pump is of large capacity and driven from the rear of the camshaft. Two relief valves are provided, one in the pump, the other in the front end of the block.

The water outlet is at the front of each cylinder head, designed for series-flow cooling. The two high-capacity pumps of centrifugal type with curved blade impellers are packless and self-lubricating. There is a recirculating type temperature control with thermostat in each outlet.

DRIVER COMFORT

New cabs are up to 7 in. wider, have 1½ in. more headroom, bigger doors



Seat cushions have individually wrapped coil springs, 2-way adjustment

CONDENSED SPECIFICATIONS—1948 FORD TRUCK

Series	F-1	F-2	F-3	F-4	F-5	F-5 C.O.E.	F-6	F-6 C.O.E.	F-7	F-8
Nominal Rating	½-Ton	¾-Ton	¾-Ton H.D.	1-Ton	1½-Ton	1½-Ton	2-Ton	2-Ton	2½-Ton	3-Ton
Maximum GVW (lb.)	4,700	5,700	6,800	10,000	14,000	14,000	15,500	16,000	19,000	21,500
Engines Available	95 hp Truck Six or 100 hp Truck V-8					100 hp Truck V-8 or 95 hp Truck Six			145 hp Truck V-8	
Wheelbase (in.)	114	122	122	134	134 158	110 134 158	134 158	110 134 158	135 159 195	135 159 195
Dimensions (in.):										
Cab to rear axle	40.06	48.06	48.06	60.06	60.06 84.06	60.06 84.06 108.06 98.56	60.06 84.06	60.06 84.06 108.06 98.56	61.06 85.06 121.06 112.30	61.06 85.06 121.06 112.30
Cab to end of frame	75.87	96.06	96.06	96.06	98.56 122.56	122.56 146.56	98.56 122.56	122.56 146.56	136.30 181.06	136.30 181.06

MAJOR ENGINE SPECIFICATIONS

	Rouge 226 Truck Six	Rouge 239 Truck V-8	Rouge 337 Truck V-8
Bore (in.)	3.300	3.1875	3.500
Stroke (in.)	4.400	3.75	4.375
Displacement (cu. in.)	226	239	337
Max. BHP @ RPM	95 @ 3300	100 @ 3800	145 @ 3600
Max. Torque (lb-ft)	180 @ 1200	180 @ 2000	255 @ 1800
Comp. Ratio	6.8 to 1	6.8 to 1	6.4 to 1
Lifters	Adjustable-self-lock screw	Pre-set hollow steel	Zero-lash hydraulic
Seat inserts	Exhaust	Intake and exhaust	Exhaust
Crankcase capacity (qts.)	5	5	10

The 95-Hp Six

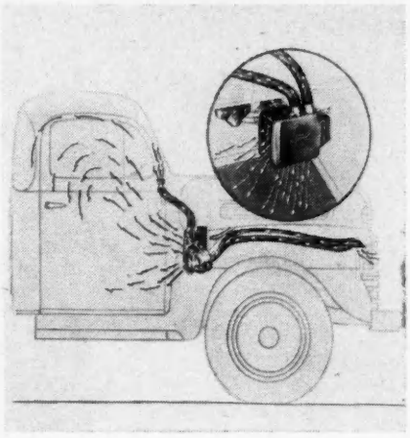
THE completely redesigned 95-hp six-cylinder truck engine has many noteworthy new features. The distributor is mounted on the left side of the block and, in common with all new Ford engines, has a fully-automatic advance controlled entirely by vacuum. The coil is adjacent. A single downdraft carburetor is provided on conventional models and an up-draft version on the c-o-e models.

The rotary-type oil pump is now mounted externally on the right side and has a capacity of 50 psi at 2000 rpm. The oil filter of full-flow type is integrally-mounted at the left rear of the block and has no external oil lines. An oil relief valve is mounted ahead of the filter for protection.

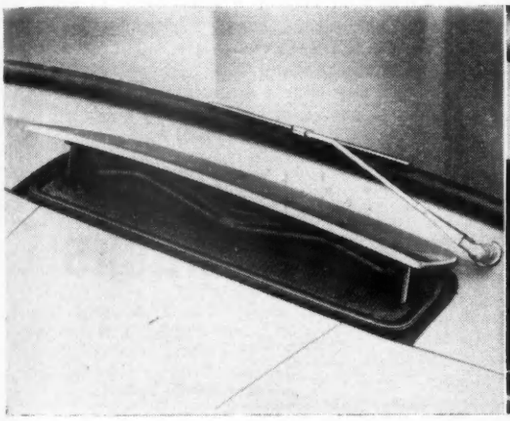
The new intake manifold has been

New 6-cyl. c-o-e cab is unusually clear, provides better access to engine

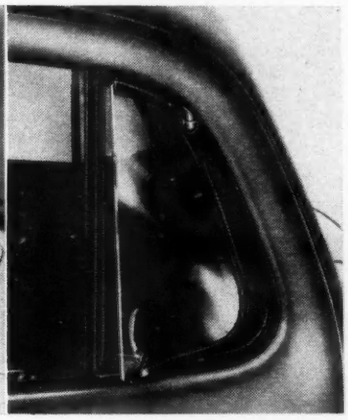
Driver's seat on variable-rate coil spring is standard in c-o-e's, optional in others



Heater with screen-protected air scoop above headlight recess is optional



Big cowl ventilator has insect screen, rubber weather seals and water drain



Ventilating wings on both doors are now standard equipment on all models

engineered for improved performance and to speed up cold weather starting. Intake valves are of Silchrome while exhaust valves are of high chrome alloy steel with valve seat inserts of molybdenum chrome alloy. Valve lifters are of adjustable self-lock screw type and long small diameter pressed-in valve guides are provided for better cooling and longer life. In addition, the center line of the valves has been moved out to increase the water passage around the valve guides.

The camshaft is of high-lift type providing for a valve train with increased lift for greater performance.

The flywheel is attached to the crankshaft flange with self-locking bolts and a viscous or rubber-bonded vibration damper is fitted at the front and marked to facilitate timing.

The 100-Hp V-8

THE most easily detected new features of the improved 100-hp V-8 is the relocation of the distributor at the right top front of the engine, the directly adjacent coil, and the exposed high-tension wiring which is no longer contained in conduits. The distributor is gear driven and advance is controlled by vacuum action.

Other new features include a detachable flywheel housing, flywheel attached to crankshaft with self-locking bolts, one-piece valve guides and a redesigned intake manifold. The two water pumps have greater capacity and new water outlets permit use of non-molded hose. The oil filler has been moved to the top front of the engine and a breather outlet near the filler is fitted with a long suction pipe. The generator has greater output, cuts in at lower speed and features a new easily accessible mounting.

Extra-Heavy-Duties

THE new "extra-heavy-duty" models F-7 and F-8 are rated at 19,000 and 21,500 lb maximum GVW respectively. In addition to the new 145-hp engine, these models have five-speed transmissions with the fifth speed overdrive on the F-7 and direct (overdrive optional) on the F-8. Both transmissions have constant-mesh helical gears in third, fourth and fifth speeds, engaged by sliding collars. Both have two-piece cases with separate clutch housing and power-take-off openings on both sides.

The F-7 has a single reduction, heavy-duty, hypoid, full-floating rear axle with split-type housing, precision fit of all assemblies, shim adjustment on the straddle-mounted pinion, extra-high-capacity wheel bearings, ring gear thrust block and four-pinion differential. The F-8 is fitted with two-speed, vacuum-controlled rear axle of heavy-duty, full-floating type. This axle has a single spiral-bevel gear high-range reduction, and a supplementary spur-gear, planetary double-reduction in low range.

Brake drums on both the F-7 and F-8 are of the demountable type, the rear ones being readily removed without disturbing the hubs. Front drums are of centrifuse type, while

(TURN TO PAGE 134, PLEASE)

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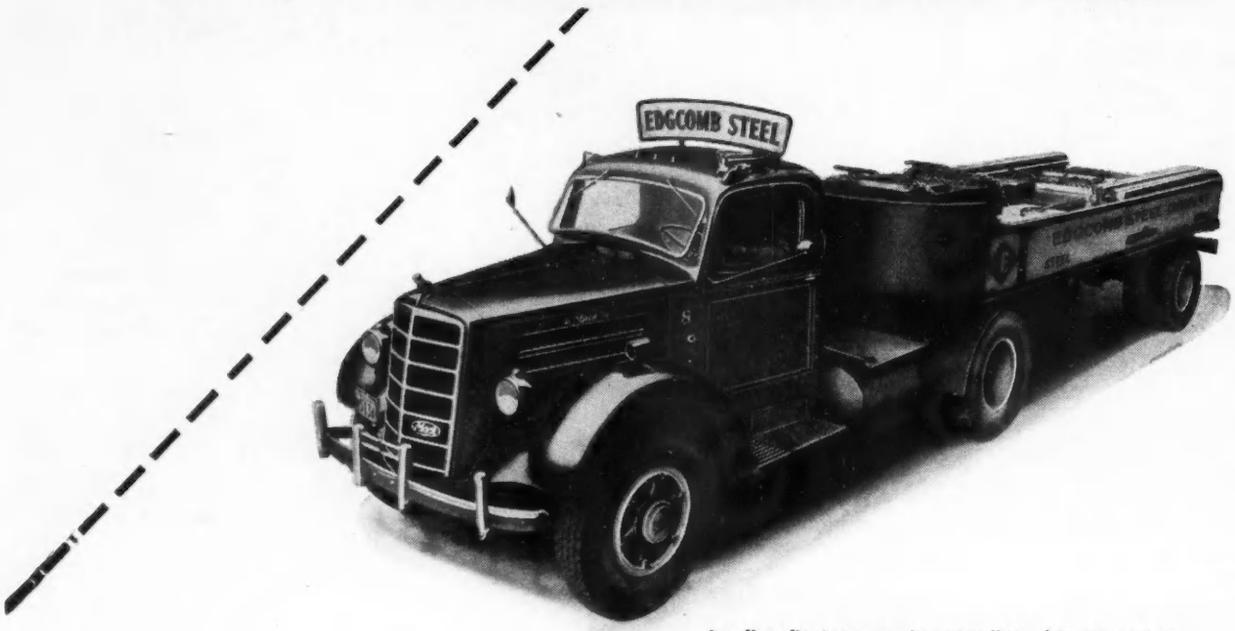

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Truck Specifications Table

OF CURRENT PRODUCTION MODELS

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY

COMMERCIAL CAR JOURNAL

Key to Definitions, References and Abbreviations

DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood: exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
(D)—Diesel-engine equipped.
(T)—Designed for tractor use only.
(C)—Converted Ford or Chevrolet Model.

(2) International Harvester—Specifications shown represent only the basic standard chassis units and standard chassis ratings in keeping with definitions established by Commercial Car Journal. Optional units not shown such as engines, clutches, transmissions, axles or axle ratios, brakes, wheels and tires, frames or frame reinforcements, optional wheelbases or any other units which make up part of the truck chassis and which International will furnish and approve from the factory as optional equipment can or will change either the ratings, chassis weight shown or performance of the truck as indicated by this list.

Also the company reserves the privileges of assigning special gross vehicle ratings for any chassis providing in the opinion of our engineering department, the type of service justifies the new rating without decreasing the safety factor designed into the truck.

(a)—Available with Two-Speed Axle designated KBS Models.

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix
BL—Brown-Lipe.
Bu or Bud—Buda.
BW—Bendix-Westinghouse
C—Chevrolet.
Cl or Cla—Clark.
Con—Continental.
Cum—Cummins-Diesel.
Eat—Eaton.
F—Ford.
Fu—Fuller.
H—Hotchkiss.
Her—Hercules.
L—Lockheed.
LH—Lockheed front, Wagner "hi-Tork" rear.
LW—Lockheed front, Wisconsin rear.
M—Midland.
N.P.—New Process.
O or Ow—Own.
Op or Opt—Optional.
Shu—Shuler.
Spi—Spicer
T or Tim—Timken.
Tw—Timken-Westinghouse
TW—Timken-Wisconsin.
WG—Warner Gear.
Wau—Waukesha.
W or Wis—Wisconsin.
We—Westinghouse.
WW—Westinghouse or Wagner

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group
4R—Forward and rear units of Rear Axle Group.
e—All wheels.

BRAKES—SERVICE

Location

4—Four Wheels, front and rear.
4r—Four Wheels, rear only.

Type

I—Internal.
X—External

Operation

A—Air.
H—Hydraulic.
V—Vacuum.
D or Dp—Dual Primary

BRAKES—HAND

Location

C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
6—Six wheels.
P—Back of Power Divider.
J—Jackshaft.
T—Transmission.
F—Driveshaft.

Type

D—Tru-Stop disk.
I—Internal.
M—Mechanical.
X—External.
PD—Two drums on rear of power divider.

BRAKE DRUMS

Material

a—Cast alloy iron.
A—American Car Foundry.
c—Cast iron.
Cc—Composite Front, Cast Iron in rear.
Cl—Copper iron.
Co—Composite.
D—Dayton.
E—Ermalite.
G—Gunite.
N—Nickel iron.
S—Steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

FRAME

Type

C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center
Tf—Tapered front.
A—Straight section sidemembers, lined with oak inserts.
Z—Reinforced (X) member frame, box type sections.

REAR AXLE

Final Drive and Type

B—Bevel.
CD—Chain Drive
F—Full-floating.
H or Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
¾—Three Quarters Floating.
½—Semi-Floating
T—Torque Tube

GEAR RATIOS

(**) Only one ratio.

Drive and Torque

H—Hotchkiss (springs).
R—Radius Rods.
L—Parallel Torque Rods
T—Torque Arm.

GOVERNOR STANDARD

Y—Yes.
N—No.

(Continued from Page 81)

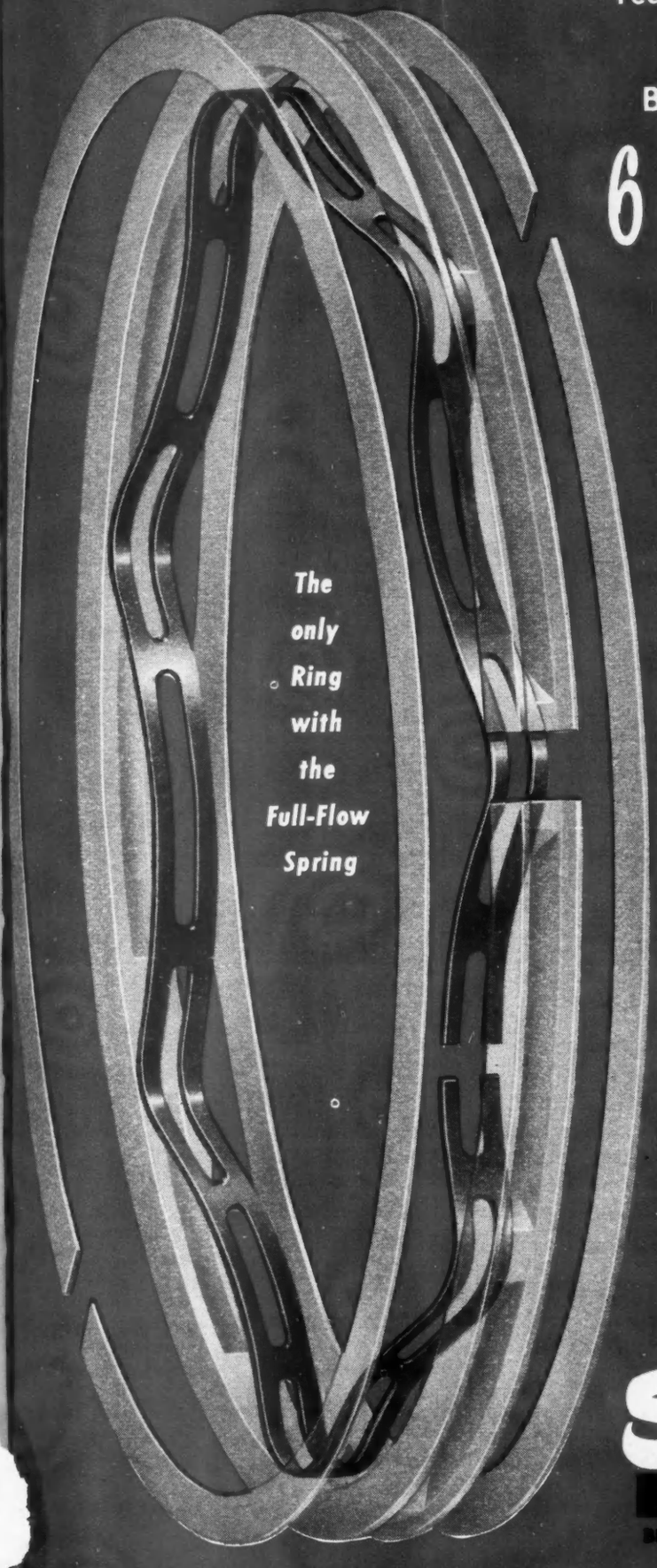
Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Sp'ds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operat'n	BRAKES SERVICE: Lining Area	BRAKES SERVICE: Drum Area	BRAKES SERVICE: Drum Material	BRAKES: Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
	Available																														
1	CS200-SP		126	133	15000		7.00/20D	7.50/20	Wau 6BM	6–3½x4¼	263	5.9	180	78–2800	7–2⅝x10¼	N	WG T9	4	Tim 53440H	SF	H	** –6.67	Tim 32502H	L4IH			a	TX	Opt	10x3x¼	T
2	C-250-SP		105		18000		7.50/20D	8.25/20	Wau 6BZ	6–4x4¼	320	5.9	210	95–2500	7–2⅝x10¼	N	Fu 5A330	5	Tim 54411H	SF	R	6.83–7.4	Tim 32502H	L4IH	334	583	a	TX	Opt	10x3x¼	T
3	CS-250-SP		105		20000		8.25/20D	9.00/20	Wau 6BZ	6–4x4¼	320	5.9	210	95–2500	7–2⅝x10¼	N	Fu 5A330	5	Tim 54411H	SF	R	6.83–7.4	Tim 32502H	L4IH	334	583	a	TX	Opt	10x3x¼	T
4	CS-400-LSP		105		21500		9.00/20D	10.00/20	Wau 6BZ	6–4x4¼	320	5.9	210	95–2500	7–2⅝x10¼	N	Fu 5A330	5	Tim 56410H	SF	R	6.83–7.4	Tim 35000H	L4IH	334	583	a	TX	Opt	12x3x¼	T
5	CS-500-SP		105		22000		9.00/20D	10.00/20	Wau 6MZA	6–4⅛x4¼	404	5.9	286	112–2500	7–2⅝x12½	Y	Fu 5F430	5	Tim 56410H	SF	R	6.83–7.4	Tim 35000H	L4IH	334	583	a	TX	Opt	12x3x¼	T
6	CS-550-SP		105		24000		9.00/20D	10.00/20	Wau 6MZA	6–4⅛x4¾	404	5.9	286	112–2500	7–2⅝x12½	Y	Fu 5F430	5	Tim 58300H	SF	R	6.83–7.4	Tim 35000H	L4IH	380	660	a	TX	Opt	12x3x¼	T
7	CS-550-SPX		112		32000		10.00/20D	11.00/20	Wau 6MZA	6–4⅛x4¾	404	5.9	286	112–2500	7–2⅝x12½	Y	Fu 5F430	5	Tim 8200H	2F	R	** –7.84	Tim 26450H	L4IH	570	1051	a	TX	Opt	14x3x⅜	T
8	CS-600		Opt	Opt	36000		11.00/20	11.00/24	Wau 6SRKR	6–4½x5½	5175	9	365	125–2300	7–2⅝x12½	Y	Fu 5F430	5	Tim 8200PA	2F	R	** –7.84	Tim 27452TW	L4IH	722	1051	a	TX	Opt	14x3x⅜	T
9	CS-600-SP		Opt	Opt	40000		11.00/20	11.00/24	Wau 145GK	6–5¼x6	779	5.6	590	186–2000	7–3½x17¾	Y	Spl 7841▼	8	Tim 8200PA	2F	R	6.42–7.84	Tim 27452TW	L4IH	722	1051	a	TD	Opt	14x3x⅜	T
10	(D)CS-600-SP.Opt.		Opt	Opt	40000		11.00/20	11.00/24	Cum HB600	6–4⅛x6	672	17	510	150–1800	7–4½x16½	Y	Spl 7841▼	8	T SW3012PA	WF	R	** –6.16	Tim 27452TW	L4IH			A	TD	Opt	14x3x⅜	T
11	Biederman NSH		130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6–4x4½	339	6.9	272	131–3200	7–2½x10½	N	Fu 5A330	5	TimH700DPH	SF	H	** –7.2	Tim 35000HX	LH4IH	514	744	G	T	60	9x3x¼	C
12	NSD		130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6–4x4½	339	6.9	272	131–3200	7–2½x10½	N	Fu 5A330	5	TimH700DPH	2D	H	6.13–8.15	Tim 35000HX	LH4IH	514	744	G	T	60	9x3x¼	C
13	Chevrolet EP	790	116		4600	▼2550	6.00/16S	158	O-Thrift Mas.	6–3½x3¾	216	6.5	174	90–3300	4– ♦ ♦ ♦	N	Own	3	Own	Hy	T	** –4.11	Own	O4IH	159	242	Co	2I	39	5¾x2¼x⅜	C
14	ER	885	125		♦5800	2830	158	7.00/17S	O-Thrift Mas.	6–3½x3¾	216	6.5	174	90–3300	4– ♦ ♦ ♦	N	Own	3	Own	HyF	H	** –4.57	Own	O4IH	178	272	Co	2I	48¼	5½x2¼x⅜	C
15	ES	930	137		8800	3095	7.00/17S	7.00/18	O-Thrift Mas.	6–3½x3¾	216	6.5	174	90–3300	4– ♦ ♦ ♦	N	Own	4	Own	HyF	H	** –5.14	Own	O4IH	243	371	Co	2I	60	7x2¾x⅜	C
16	QJ	1020	137		12500	3475	7.00/20S	7.50/20	O-Thrift Mas.*	6–3½x3¾	216	6.5	174	90–3300	4– ♦ ♦ ♦	N	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	60	7x2¾x⅜	C
17	QK	1050	161		12500	3585	7.00/20S	7.50/20	O-Thrift Mas.*	6–3½x3¾	216	6.5	174	90–3300	4– ♦ ♦ ♦	N	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	84	8¼x2⅞x¾	C
18	(School bus) QL	1195	161		12000	4075	7.50/20D	7.00/20	O-Thrift Mas.*	6–3½x3¾	216	6.5	174	90–3300	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I		8¼x2⅞x¾	C
19	QVS	1410	137		15000	4105	7.50/20D	8.25/20▲	O-Load Mas.	6–3⅞x3⅞	235	6.6	192	93–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	60	8¼x2⅞x¾	C
20	QWS	1430	161		15000	4185	7.50/20D	8.25/20▲	O-Load Mas.	6–3⅞x3⅞	235	6.6	192	93–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	84	8¼x2⅞x¾	C
21	(c.o.e.) QPS	●1715	110		15000	●4590	7.50/20D	8.25/20▲	O-Load Mas.	6–3⅞x3⅞	235	6.6	189	90–3100	4– ♦ ♦ ♦	Y	Own	4	Own	HyF	H	–6.17	Own	O4IH	330	478	Co	2I	60⅛	8¼x2⅞x¾	C
22	(c.o.e.) QRS	●1755	134		15000	●4810	7.50/20D	8.25/20▲	O-Load Mas.	6–3⅞x3⅞	235	6.6	189	90–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	–6.17	Own	O4IH	330	478	Co	2I	84⅛	8¼x2⅞x¾	C
23	(c.o.e.) QSS	●1775	158		15000	●4895	7.50/20D	8.25/20▲	O-Load Mas.	6–3⅞x3⅞	235	6.6	189	90–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	–6.17	Own	O4IH	330	478	Co	2I	108⅛	8¼x2⅞x¾	C
24	(c.o.e.) QP	●1715	110		16000	●4590	7.50/20D	8.25/20	O-Load Mas.	6–3⅞x3⅞	235	6.6	189	90–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	60⅛	8¼x2⅞x¾	C
25	(c.o.e.) QR	●1755	134		16000	●4810	7.50/20D	8.25/20	O-Load Mas.	6–3⅞x3⅞	235	6.6	189	90–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	84⅛	8¼x2⅞x¾	C
26	(c.o.e.) QS	●1775	158		16000	●4895	7.50/20D	8.25/20	O-Load Mas.	6–3⅞x3⅞	235	6.6	189	90–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	108⅛	8¼x2⅞x¾	C
27	QV	1410	137		16000	4105	7.50/20D	8.25/20	O-Load Mas.	6–3⅞x3⅞	235	6.6	192	93–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	60	8¼x2⅞x¾	C
28	QW	1430	161		16000	4185	7.50/20D	8.25/20	O-Load Mas.	6–3⅞x3⅞	235	6.6	192	93–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I	84	8¼x2⅞x¾	C
29	(School bus) QX	1475	199		15000	4580	7.50/20D	8.25/20	O-Load Mas.	6–3⅞x3⅞	235	6.6	192	93–3100	4– ♦ ♦ ♦	Y	Own	4	□Own	HyF	H	6.17	Own	O4IH	330	478	Co	2I		8¼x2⅞x¾	C
30	Corbitt■ 18BG		181		18000		9.00/20	10.00/20	Con M6330	6–4x4⅛	330	6.1	246	104–2800	7–2⅝x12	Y	Cla 205V	5	TimH100DPH		H	**–5.29	Tim 32502H	B4IHV			a	TX		8x3¼x¼	T
31	22BG		190		22000		10.00/20	10.00/22	Con B6371	6–4⅛x4⅝	371	6.0	280	100–2600	7–2⅞x13½	Y	Fu 5A433	5	Tim L100DPH		H	**–5.29	Tim 35000H	B4IHV			a	TX		8x3¼x¼	T
32	25BG		200		25000		10.00/22	11.00/22	Con B6427	6–4⅛x4⅞	427	5.9	325	127–2600	7–2⅞x13½	Y	Fu 5A433	5	Tim Q100P		H	**–6.17	Tim 35100TW	Ws4IA			a	TX		8¼x3¼x⅜	T
33	(T) 18TG		137		18000		9.00/20	10.00/20	Con M6330	6–4x4⅛	330	6.1	246	104–2800	7–2⅝x12	Y	Cla 205V	5	Tim H100P‡‡		H	**–5.29	Tim 32505TW	Ws4IA			a	TX		7¼x3¼x⅜	T
34	(T) H18TG		137		18000		10.00/20		Con M6330	6–4x4⅛	330	6.1	246	104–2800	7–2⅝x12	Y	Cla 205V	5	Tim L100P‡‡		H	**–5.29	Tim 32505TW	Ws4IA			a	TX		7¼x3¼x⅜	T
35	(T) 22TG		144		22000		10.00/20	10.00/22	Con B6427	6–4⅛x4⅞	427	5.9	325	127–2600	7–2⅞x13½	Y	Fu 5A433	5	Tim L100P‡‡		H	**–5.29	Tim 35000TW	Ws4IA			a	TX		8x3¼x¼	T
36	(T) H22TG		144		22000		10.00/22		Con B6427	6–4⅛x4⅞	427	5.9	325	127–2600	7–2⅞x13½	Y	Fu 5A433	5	Tim Q100P‡‡		H	**–5.29	Tim 35100TW	Ws4IA			a	TX		8x3¼x¼	T
37	(T) 25TG		148		25000		10.00/22	11.00/22	Con R6513	6–4½x5⅜	513	5.9	400	164–2600	7–3¼x—	Y	Spl 6253		Tim Q100P‡‡		H	**–6.17	Tim 35100TW	Ws4IA			a	2		8¼x3¼x⅜	T
38	(T) H25TG		148		25000		10.00/22		Con R6513	6–4½x5⅜	513	5.9	400	164–2600	7–3¼x—	Y	Spl 6253		Tim R100P‡‡		H	**–6.17	Tim 35100TW	Ws4IA			a	2		8¼x3¼x⅜	T
39	(T) 28TG		147		28000		10.00/22	11.00/24	Con R6602	6–4½x5⅞	602	5.9	460	185–2600	7–3¼x—	Y	Fu 5A650		Tim S200P‡‡		H	**–6.42	Tim 26450TW	Ws4IA			a	2D		8¼x3¼x⅜	T
40	(D) (T) 22TD		144		22000		10.00/20	10.00/22	Her DWXD	6–4¼x4¾	404	15	320	135–2600		Y	Fu 5A430		Tim L300P		H	3.32–8.20	Tim 35000TW	Ws4IA			a	TX		8x3¼x¼	T
41	(D) (T) H22TD		144		22000		10.00/22		Her DWXD	6–4¼x4¾	404	15	320	.35–2600		Y	Fu 5A430		Tim Q300P		H	3.53–8.53	Tim 35100TW	Ws4IA			a	TX		8x3¼x¼	T
42	(D) (T) 25TD		148		25000		11.00/20	11.00/22	Her DRXC	6–4⅝x5¼	529	14	400	148–2200	7–3½x13¾	Y	Spl 6253		Tim Q300P		H	6.53–8.53	Tim 35000TW	Ws4IA			a	2		8¼x3¼x⅜	T
43	(D) (T) H25TD		148		25000		10.00/22		Her DRXC	6–4⅝x5¼	529	14	400	148–2200	7–3½x13¾	Y	Spl 6253		Tim R300P		H	6.53–8.53	Tim 35000TW	Ws4IA			a	2		8¼x3¼x⅜	T
44	(D) (T) 27TD		152		27000		10.00/22	11.00/24	Cum HB600	6–4½x6	672	17	500	150–1800	7–4½x16½	Y	Fu 5A920		Tim Q100P‡‡		H	5.29	Tim 26450W	Ws4IA			a	2		8¼x3¼x⅜	T
45	(D) (T) H27TD		152		27000		10.00/22		Cum HB600	6–4½x6	672	17	500	150–1800	7–4½x16½	Y	Fu 5A920		Tim R300P		H	4.92–6.42	Tim 26450W	Ws4IA			a	2		8¼x3¼x⅜	T
46	(D) (T) 28TD		155		28000		10.00/22	11.00/24	Cum NHB600	6–5½ x6	743	15	575	200–2100		Y	Fu 5A920		Tim S200P‡‡		H	6.42	Tim 26450W	Ws4IA			a	2D		8¼x3¼x⅜	T
47	Crosley B		80		1680		4.50/12		Own CE7	4–2½x2¾	44	7.5	33	26–5400	5–‡		WG-ASI-T92	3	Spl	2F		** –5.17	Own	Haw M	64	72	C				
48	Dodge B-1-B		108	108	4850		6.00/16–8	6.50/16–8	Own T-142	6–3¼x4⅜	217	6.6	172	95–3600	4–2½x4.8	N	NP-39750	3	Own T-142	HyS	H	4.1–4.7	Own T-142	O4IH	174	264	Ce	TX	40	⅞x2⅞x6⅛	C
49	B-1-C		116	116	5500		TA-15–8	TA-15–8	Own T-144	6–3¼x4⅜	217	6.6	172	95–3600	4–2½x4.8	N	NP-39750	3	Own T-144	HyS	H	4.1–4.7	Own T-144	O4IH	184	276	Ce	TX	48	⅞x2⅞x6⅛	C
50	B-1-D		116	126	7500		6.00/16S^	6.00/20	Own T-146	6–3¼x4⅛	230	6.7	184	102–3600	4–2½x4.8	N	NP-39820	3	Own T-146	HyS	H	3.9–4.8	Own T-146	O4IH	212	316	Ce	TX	48	⅞x2⅞x6⅛	C
51	B-1-FL		128	152	9000		6.00/20S‡	6.50/20	Own T-148	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	N	NP-39670	4	Own T-148	HyF	H	5.6–6.8	Own T-148	O4IH	336	479	Ce	TX	60	21x2¾x7	C
52	B-1-F		128	192	14500		6.00/20S‡	7.50/20	Own T-148	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	N	NP-39670	4	Own T-148	HyF	H	5.6–6.8	Own T-148	O4IH	336	479	Ce	TX	60	21x2¾x7	C
53	B-1-FA		128	192	14500		6.50/20–D	7.50/20	Own T-148	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	N	NP-39670	4	Eat A5-1350	SFd	H	5.8–8.1	Own T-148	O4IH	336	479	Ce	TX	60	21x2¾x7	C
54	B-1-H		128	192	15500		7.00/20♣	8.25/20	Own TX-148	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	Y	NP-39670	4	Own TX-148	HyF	H	5.6–6.8	Own TX-148	O4IHV	336	479	Ce	TX	60	21x2¾x7	C
55	B-1-HA		128	192	15500		7.00/20♣	8.25/20	Own TX-148	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	Y	NP-39670	4	Eat A5-1350	SFd	H	5.8–8.1	Own TX-148	O4IHV	336	479	Ce	TX	60	21x2¾x7	C
56	B-1-FM		107	161	14750		6.00/20‡S	7.50/20	Own T-152	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	N	NP-88070	4	Own T-152	HyF	H	5.6–6.8	Own T-152	O4IH	336	479	Ce	TX	60	⅞x2¾x7	C
57	B-1-FMA		107	161	14750		6.50/20–D	7.50/20–D	Own T-152	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	N	NP-88070	4	Eat A5-1350	SFd	H	5.8–8.1	Own T-152	O4IH	336	479	Ce	TX	60	⅞x2¾x7	C
58	B-1-HM		107	161	15750		7.00/20♣	8.25/20	Own TX-152	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	Y	NP-88070	4	Own TX-152	HyF	H	5.6–6.8	Own TX-148	O4IHV	336	479	Ce	TX	60	⅞x2¾x7	C
59	B-1-HMA		107	161	15750		7.00/20♣	8.25/20	Own TX-152	6–3⅛x4¼	236	6.6	192	109–3600	4–2x5.054	Y	NP-88070	4	Eat A5-1350	SFd	H	5.8–8.1	Own TX-148	O4IHV	336	479	Ce	TX	60	⅞x2¾x7	C
60	B-1-JL		128	212	16500		6.00–20D	8.25/20	Own T-150	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-39780	5	Own T-150	HyF	H	6.2–7.1	Own T-150	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
61	B-1-JAL		128	212	16500		6.00/20D	8.25/20	Own T-150	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-39780	5	Eat A5-1350	SFd	H	5.8–8.1	Own T-150	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
62	B-1-KAL		128	212	17000		8.25/20$	9.00/20°	Own TX-150	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-39780	5	Eat A5-1350	SFd	H	6.1–8.5	Own TX-150	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
63	B-1-JML		107	161	16750		6.00/20D	8.25/20	Own T-154	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-88090	5	Own T-154	HyF	H	6.2–7.1	Own T-154	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
64	B-1-JMAL		107	161	16750		6.00/20D	8.25/20	Own T-154	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-88090	5	Eat A5-1350	SFd	H	5.8–8.1	Own T-154	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
65	B-1-KMAL		107	161	17250		8.25/20$	9.00/20°	Own TX-154	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-88090	5	Eat A5-1350	SFd	H	6.1–8.5	Own TX-154	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
66	B-1-J		128	212	16500		6.50/20D	8.25/20	Own T-150	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-39780	5	Own T-150	HyF	H	6.2–7.1	Own T-150	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
67	B-1-JA		128	212	16500		6.50/20D	8.25/20	Own T-150	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-39780	5	Eat A5-1350	SFd	H	5.8–8.1	Own T-150	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
68	B-1-KA		128	212	17000		8.25/20$	9.00/20°	Own TX-150	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-39780	5	Eat 13500	SFd	H	6.1–8.5	Own TX-150	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
69	B-1-JM		107	161	16750		6.50/20D	8.25/20	Own T-154	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-88090	5	Own T-154	HyF	H	6.2–7.1	Own T-154	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
70	B-1-JMA		107	161	16750		6.50/20D	8.25/20	Own T-154	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-88090	5	Eat A5-1350	SFd	H	5.8–8.1	Own T-154	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
71	B-1-KMA		107	161	17250		8.25/20$	9.00/20°	Own TX-154	6–3⅛x4½	250	6.6	204	114–3600	4–2x5.054	Y	NP-88090	5	Eat 16500 lb.	SFd	H	6.1–8.5	Own TX-154	O4IHV	396	553	C	TX	60	⅞x2⅝x8⅛	C
72	B-1-R		130	229	18500		7.50/20D	9.00/20	Own T-156	6–3¾x4¼	281	6.4	225	115–3200	7–3x11.2	Y	NP-38100	5	TimH100DPH	HyF	H	6.8–8.1	Own T-156	O4IHV	396	603	C	TX	60	⅞x2⅝x9⅛	C
73	B-1-RA		130	229	18500		7.50/20D	9.00/20	Own T-156	6–3¾x4¼	281	6.4	225	115–3200	7–3x11.2	Y	NP-38100	5	Tim H-300	HyF	H	6.1–8.8	Own T-156	O4IHV	396	603	C	TX	60	⅞x2⅝x9⅛	C
74	B-1-T		130	190	21000		8.25/20$	10.00/20	Own T-158	6–3¾x5	331	6.5	270	128–3000	7–3x11.2	Y	NP-38110	5	Tim L-100	HyF	H	6.8–8.2	Tim 32516A1	O4IHV	424	666	C	TX	60	¼x3x10	C

°—Rear only; front 8.25/20. ‡‡ Two speed axles available. □ Chevrolet own rear axle (5.43:1) available on Models QJ-QK-QL. Chevrolet own 2-speed rear axle (6.13–8.10:1) available at extra cost on Models QVS-QWS-QP-QPS-QR-QRS-QS-QSS-QV-QW-QX. ♦ 7.50/17 tire is optional for Rear, or Front & Rear, with no increase in G.V.W. ▼ With Spl 703A with 3 forward speeds. ‡ Front only: Rear 6.50/20S. ▲ 7.50/20 can be used on the front with no change in 15000 G.V.W. • Own Loadmaster engine available on models QJ-QK-QL at extra cost. $—Rear only; front 7.50/20. ^ Front only; Rear 7.00/16S. ■ Sleeper cab models available in 25-27-28 Series with 25 inch longer wheelbase. ‡—1 Front, 1.35x1.812; 3 Center 1.375x.870; 1 Rear 1.500x1.499. ♦ ♦ Diameter: Front, 2.6870; Front Center, 2.7180; Rear Center, 2.7490; Rear, 2.7800; Total length, 5⅞. * Includes cab. ▼ Includes weight of spare tire which is not included for all other models. ♣ Front only; Rear 7.50/20D.

(Turn to Page 84, please)

NEW SEALED POWER FULL-FLOW SPRING

Featured in MD-50 STEEL OIL RING



BUILDS SATISFACTION THROUGH

6 exclusive advantages!

1. Increased direct ventilation of new Full-Flow Spring gives improved oil economy over a longer period.
2. The double ventilation in the new Full-Flow design gives far greater independent spring action to steel segments—an important feature in tapered and out of round bores.
3. New Full-Flow Spring leaves all slots in cast iron spacer and all oil holes in piston open and unobstructed for full flow of oil, making it highly resistant to carbon formation.
4. Exclusive design of new Full-Flow Spring compensates for greater variation in groove depth without loss of tension.
5. Exclusive design of new Full-Flow Spring, giving a greater bearing area of points of contact with both piston and ring, assures longer spring life.
6. The Full-Flow Spring will absolutely retain its original efficiency and inherent shape characteristics throughout the life of the ring.

Sealed Power "X" Sets—for all popular makes of cars and trucks feature the MD-50 Steel Oil Ring—THE ONLY RING WITH THE FULL-FLOW SPRING—Sealed Power Corporation, Muskegon, Michigan, in Canada: Stratford, Ontario.

Sealed Power

PISTON RINGS

BEST IN NEW TRUCKS! BEST IN OLD TRUCKS!

♦ Includes weight of spare tire which is not included for all other models.
♦ Includes cab.
♦ Diameter: Front, 2.0470; Front Center, 2.7180; Rear Center, 2.7460; Rear, 2.7800; Total length, 5¼.
♦ Front only; Rear 7.50/20D.

(Continued from Page 82)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number, Diameter and Length	Governor Standard	TRANSMISSION Make and Model	TRANSMISSION Forward Sp'ds	REAR AXLE Make and Model	REAR AXLE Gear and Type	REAR AXLE Drive & Torque	REAR AXLE Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operat'a	BRAKES SERVICE Lining Area	BRAKES SERVICE Drum Area	BRAKES SERVICE Drum Material	BRAKES Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME Side Rail Dimensions	FRAME Type
	Dodge Cont'd																														
1	B-1-TA		130	190	21000		8.25/20§	10.00/20	Own T-158	6–3¾x5	331	6.5	270	128–3000	7–3x11.2	Y	NP-38110	5	Tim L-300	HyF	H	6.3–9.1	Tim 32516A1	O4IHV	424	666	C	TX	60	¼x3x10	C
2	B-1-V		130	190	23000		10.00/20†	11.00/20	Own T-158	6–3¾x5	331	6.5	270	128–3000	7–3x11.2	Y	NP-38110	5	Tim Q-100	HyF	H	6.8–8.5	Tim 35020-NX9	O4IHV	485	770	C	TX	60	¼x3x10	C
3	B-1-VA		130	190	23000		10.00/20	11.00/20	Own T-158	6–3¾x5	331	6.5	270	128–3000	7–3x11.2	Y	NP-38110	5	Tim Q-300	HyF	H	6.5–9.5	Tim 35020-NX9	O4IHV	485	770	C	TX	60	¼x3x10	C
	School Buses																														
4	Dodge..B-1-FS-162		152	152	15000		6.50/20D	7.00/20	Own T-148	6–3 7/16 4x1½	236	6.6	192	109–3600	4–2¼x5.054	N	NP-39670	4	Own T-148	HyF	H	5.6–6.8	Own T-148	O4IH	336	479	Ce	TX	.....	21x2¾x7	C
5	B-1-FS-170		170	170	15000		6.50/20	7.50/20	Own T-148	6–3½x4¼	236	6.6	192	109–3600	4–2¼x5.054	N	NP-39670	4	Own T-148	HyF	H	5.6–6.8	Own T-148	O4IHV	336	479	Ce	TX	.....	¼x2⅜x7⅞	C
6	B-1-FS-192		192	192	15000		7.50/20D	8.25/20	Own T-148	6–3½x4¼	236	6.6	192	109–3600	4–2¼x5.054	N	NP-39670	4	Own T-148	HyF	H	5.6–6.8	Own T-148	O4IHV	336	479	Ce	TX	.....	¼x2⅜x7⅞	C
7	B-1-JS-212		212	212	17000		7.50/20D	8.25/20	Own T-150	6–3¾x4½	250	6.6	204	114–3600	4–2¼x5.054	N	NP-39780	5	Own T-150	HyF	H	6.2–7.1	Own T-150	O4IHV	396	553	C	TX	.....	¼x2½x8¾	C
8	B-1-RS-229		229	229	19000		8.25/20D	9.00/20	Own T-156	6–3¾x4¼	281	6.4	225	115–3200	7–3x11.2	Y	NP-38100	5	TimH100DPH	HyF	H	6.8–8.1	Own T-156	O4IHV	396	609	C	TX	.....	¼x2⅜x9⅛	C
9	Duplex.....T		136	220	18000	6600	8.25/20	9.00/20	Her JXD	6–4x4¼	320	6.2	240	113–3000	7–2½x10‡‡	Y	Fu 5B330	5	Tim H100	B	H	** –6.83	Tim 32502	L4IHV	420	654	A	TX	59	9¼x3½x⅝	C
10	Duplex..TH-404		136	154	18000	6900	8.25/20	9.00/20	Her WXLC3	6–4¼x4½	404	5.8	312	139–2600	7–2½x10‡‡	Y	FU-5A430	5	Tim H-300	DF	H	6.13–8.15	Tim 32502	L41HV	420	654	A	TX	59	9½x3½x⅝	C
11	R		136	220	25000	8820	9.00/20	10.00/20	Her WXLC-3	6–4¼x4½	404	5.8	312	139–2600	7–2½x13¼	Y	Fu 5A43	5	Tim Q300	DF	R	6.53–8.53	Tim 35000	L41HV	730	1016	A	TX	79	9½x3½x⅝	C
12	JHA		148	220	28000	9800	10.00/20D	11.00/20	Her RXB	6–4½x5¼	501	5.4	360	121–2200	7–3x14	Y	Fu 5A620	5	Tim 8200	2F	R	** –9.83	Tim 26450	W841A	912	1311	A	TX	79	10½x3⅛x⅝	C
13	JH-55A		148	220	28000	9800	10.00/20	11.00/20	Her RXLD	6–4¾x5¼	558	6.3	430	154–2400	7–3½x13¼	Y	FU-5A650	5	Tim S-300	DF	R	6.53–8.53	Tim 26450	W841A	912	1311	A	TX	79	10½x3⅛x⅝	C
14	KHA		148	220	32000	10500	11.00/20	11.00/20	Her RXC	6–4⅝x5¼	529	5.4	395	132–2300	7–3x14¼	Y	Fu 5A620	5	Tim U-200	2F	R	** –9.83	Tim 26450	W841A	912	1311	A	TX	79	10½x3⅛x⅝	C
15	L		148	220	36000	11100	11.00/20	11.00/20	Her RXLD	6–4¾x5¼	558	5.4	425	154–2400	7–3½x13¼	Y	Fu 5C650	5	Tim U-200	2F	R	** –9.83	Tim 26450	W841A	912	1311	A	TX	79	10¾x3⅛x⅝	C
16	Federal.....16M		146	194	13500	4460	7.50/20D	7.50/20	Her JXEF	6–3½x4¼	245	6.5	180	87–3000	7–2½x10‡‡	N	WG T9	4	T 53547DPH	BF	H	** –5.66	Tim 30000HX	L4IHV	310	482	a	TX	67	8⅛x2⅞x¼	T
17	18M		146	194	15000	4700	8.25/20D	8.25/20	Her JXBF	6–3⅝x4¼	263	6.5	189	93–3000	7–2½x10‡‡	N	WG T9	4	TimE100DPH	SF	H	** –6.20	Tim 30003H	LT4IHV	314	532	a	TX	67	8⅛x2⅞x¼	T
18	18M2		146	194	15000	4830	8.25/20D	8.25/20	Her JXBF	6–3⅝x4¼	263	6.5	189	93–3000	7–2½x10‡‡	N	WG T9	8	TimE300DPH	dF	H	6.13–8.10	Tim 30003H	LT4IHV	314	532	a	TX	67	8⅛x2⅞x¼	T
19	25M		146	194	17500	4950	8.25/20D	9.00/20	Her JXCF	6–3¾x4¼	282	6.5	212	102–3000	7–2½x10‡	N	Cla 205VO	5	TimH100DPH	SF	H	** –6.80	Tim 3100H	LT4IHV	346	583	a	TX	67	8⅛x2⅞x¼	T
20	25M2		146	194	17500	5100	8.25/20D	9.00/20	Her JXCF	6–3¾x4¼	282	6.5	212	102–3000	7–2½x10‡	N	Cla 205VO	5	TimH300DPH	dF	H	6.13–8.15	Tim 3100H	LT4IHV	346	583	a	TX	67	8⅛x2⅞x¼	T
21	29M		146	194	20000	5500	9.00/20D	10.00/20	Her JXDF	6–4x4¼	320	6.5	246	112–2800	7–2½x10‡‡	Y	Cla 205V	5	Tim L100DPH	SF	H	** –6.83	Tim 32514H	LT4IHV	466	820	a	TX	67	8⅛x2⅞x¼	T
22	29M2		146	194	20000	5690	9.00/20D	10.00/20	Her JXDF	6–4x4¼	320	6.5	246	112–2800	7–2½x10‡‡	Y	Cla 205V	10	Tim L300DPH	dF	H	6.32–8.22	Tim 32514H	LT4IHV	466	820	a	TX	67	8⅛x2⅞x¼	T
23	29MA		155	194	20000	5950	9.00/20D	10.00/20	Her JXDF	6–4x4¼	320	6.5	246	112–2800	7–2½x10‡‡	Y	Cla 205V†	15	Tim L100DPH	SF	H	** –6.83	Tim 32514H	LT4IHV	466	820	a	TD	76	8⅛x2⅞x¼	T
24	29ML		146	194	20000	5535	9.00/20D	10.00/20	Here JXLDF	6–4x4½	339	6.5	264	119–2800	7–2½x10‡‡	Y	Cla 205V	5	Tim L100DPH	SF	H	** –6.83	Tim 32514H	LT4IHV	466	820	a	TX	67	8⅛x2⅞x¼	‡T
25	29ML2		146	194	20000	5725	9.00/20D	10.00/20	Here JXLDF	6–4x4½	339	6.5	264	119–2800	7–2½x10‡‡	Y	Cla 205V	10	Tim L300DPH	dF	H	6.32–8.22	Tim 32514H	LT4IHV	466	820	a	TX	67	8⅛x2⅞x¼	‡T
26	29MLA		155	194	20000	5985	9.00/20D	10.00/20	Here JXLDF	6–4x4½	339	6.5	264	119–2800	7–2½x10‡‡	Y	Cla 205V	15	Tim L100DPH	SF	H	** –6.83	Tim 32514H	LT4IHV	466	820	a	TD	76	8⅛x2⅞x¼	‡T
27	35M		143	203	21000	6925	9.00/20D	10.00/20	Con T6371	6–4½x4⅛	371	6.6	290	133–2600	7–2½x13½	Y	Cla 270VO	5	Tim L100DPH	SF	R	**–6.83	Tim 32514H	LT4IHV	466	820	a	TX	60½	10½x3¼x⅞	T
28	35M2		143	203	21000	7115	9.00/20D	10.00/20	Con T6371	6–4½x4⅛	371	6.6	290	133–2600	7–2½x13½	Y	Cla 270VO	10	Tim L300DPH	dF	R	6.32–8.22	Tim 32514H	LT4IHV	466	820	a	TX	60½	10½x3¼x⅞	T
29	45M		143	203	24000	8005	10.00/22D	10.00/24	Con B6427	6–4 7/16 4x4⅛	427	6.4	332	133–2600	7–2½x13½	Y	Cla 270VO	5	Tim Q100P	SF	R	** –6.83	Tim 35011TW	TW41A	606	933	a	TD	60½	10½x3¼x⅞	T
30	45M2		143	203	24000	8380	10.00/22D	10.00/24	Con B6427	6–4 7/16 4x4⅛	427	6.4	332	133–2600	7–2½x13½	Y	Cla 270VO	10	Tim Q300P	dF	R	6.53–8.53	Tim 35011TW	TW41A	606	933	a	TD	60½	10½x3¼x⅞	T
31	55M2		143	203	27000	8635	11.00/22D	11.00/24	Con B6427	6–4 7/16 4x4⅛	427	6.4	332	133–2600	7–2½x13½	Y	Cla 270VO	10	Tim 8300P	HyF	R	6.53–8.53	Tim 36021TW	Tw41A	722	1051	a	TD	72½	10½x3¼x⅞	T
32	55MA		155	203	27000	8765	11.00/22D	11.00/24	Con B6427	6–4 7/16 4x4⅛	427	6.4	332	133–2600	7–2½x13½	Y	Cla 270V†	15	Tim 8-200P	2F	R	** –7.08	Tim 36021TW	TW41A	722	1051	a	TD	72½	10½x3¼x⅞	T
33	60MA		155	203	28000	9600	11.00/22D	11.00/24	Con 22R	6–4½x5¼	501	5.4	384	148–2400	7–2¾x14½	Y	Fu 5A65‖	15	Tim 8200P	2F	R	** –7.08	Tim 36021TW	Tw41A	722	1051	a	FX	72½	10½x3¼x⅞	T
34	60M2		143	203	28000	9370	11.00/22D	11.00/24	Con 22R	6–4½x5¼	501	5.4	384	148–2400	7–2¾x14½	Y	Fu 5A650	10	Tim 8300P	HyF	R	6.53–8.53	Tim 36021TW	Tw41A	722	1051	a	TX	60½	10½x3¼x⅞	T
35	65M2		141	201	30000	9995	11.00/22D	11.00/24	Con R6602	6–4½x5¾	602	6.1	464	200–2600	7–3¼x14½	Y	Fu 5A650	10	Tim 8300P	HyF	R	6.53–8.53	Tim 36000TW	Ws41A	722	1051	a	TX	60½	10½x3¼x⅞	T
36	65MA		153	201	30000	10225	11.00/22D	11.00/24	Con R6602	6–4½x5¾	602	6.1	464	200–2600	7–3¼x14½	Y	Fu 5A65‖	15	Tim 8200P	HyF	R	** –7.08	Tim 36000TW	Ws41A	722	1051	a	TX	72½	10½x3¼x⅞	T
	Ford Light Duty																														
37	Chs. Cowl..79C	878	114	114	4700	$2276	6.50/16§	6.50/16§	Own 59C	8–3 7/16 x3¼	239	6.7	180	100–3800	3–2½x4.96	N	Own 21C	3	Own 21C	8¼	H	** –3.78	Own 21C	O4IH	162	264	Co	21	40.06	5.92x2½x.15	T
38	Chs. Cowl..7GC	848	114	114	4700	$2276	6.50/16§	6.50/16§	Own 5GC	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 2GC	3	Own 21C	8¼	H	** –3.78	Own 21C	O4IH	162	264	Co	21	40.06	5.92x2½x.15	T
39	Chs. Cowl..79Y	1062	122	122	6600	$2776	7.50/178▽	7.50/178▽	Own 59Y	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 51Y	4	Own 21Y	SF	H	** –4.85	Own 21Y	O4IH	187	308	Co	21	48.06	6x2¼x.19	T
40	Chs. Cowl..7GY	1032	122	122	6600	$2776	7.50/178▽	7.50/178▽	Own 5GY	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 51Y	4	Own 21Y	SF	H	** –4.85	Own 21Y	O4IH	187	308	Co	21	48.06	6x2¼x.19	T
	Heavy Duty Dump																														
41	Chs. Cowl..79U	1273	134	134	12500	$3911	7.50/20D	7.50/20	Own 59T	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	60.06	7x2¾x.21	LT
42	Chs. Cowl..7GU	1243	134	134	12500	$3911	7.50/20D	7.50/20	Own 5GT	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 4GT	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	60.06	7x2¾x.21	LT
	Heavy Duty Truck																														
43	Chs. Cowl..79T	1261	134	134	12500	$3906	7.50/20D	7.50/20	Own 59T	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	60.06	7x2¾x.21	LT
44	Chs. Cowl..7GT	1231	134	134	12500	$3906	7.50/20D	7.50/20	Own 5GT	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 4GT	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	60.06	7x2¾x.21	LT
45	Chs. Cowl..798T	1291	158	158	12500	$3986	7.50/20D	7.50/20	Own 59T	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	84.06	7x2¾x.21	LT
46	Chs. Cowl.7G8T	1261	158	158	12500	$3986	7.50/20D	7.50/20	Own 5GT	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 4GT	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	84.06	7x2¾x.21	LT
	Heavy Duty COE																														
47	Cab Chs...791W	1555	101	101	13500	$4333	7.50/20D	7.50/20	Own 59W	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 01T	SF	H	** –6.66	Own 01W	O4IH	303	506	Co	TX	60.06	7x2¾x.21	T
48	Cab Chs....79W	1585	134	134	13500	$4468	7.50/20D	7.50/20	Own 59W	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 01T	SF	H	** –6.66	Own 01W‖	O4IH	303	506	Co	TX	93.06	7x2¾x.21	LT
49	Cab Chs...798W	1615	158	158	13500	$4543	7.50/20	7.50/20	Own 59W	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 01T	SF	H	** –6.66	Own 01W	O4IH	303	506	Co	TX	117.1	7x2¾x.21	LT
	Heavy Duty Dump																														
50	Chs. Cowl.79UH	1603	134	134	14500	$4076	8.25/20^D	8.25/20^	Own 59T	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01T	O41HV	303	506	Co	TX	60.06	7x2¾x.21	LT
51	Chs.Cowl.7GUH	1573	134	134	14500	$4076	8.25/20^D	8.25/20^	Own 5GT	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 4GT	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01T	O41HV	303	506	Co	TX	60.06	7x2¾x.21	LT
	Heavy Duty Truck																														
52	Chs. Cowl.79TH	1591	134	134	14500	$4071	8.25/20^D	8.25/20^	Own 59T	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01T	O41HV	303	506	Co	TX	60.06	7x2¾x.21	LT
53	Chs.Cowl.7GTH	1561	134	134	14500	$4071	8.25/20^D	8.25/20^	Own 5GT	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 4GT	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01T	O41HV	303	506	Co	TX	60.06	7x2¾x.21	LT
54	Chs.Cowl.798TH	1621	158	158	14500	$4151	8.25/20^D	8.25/20^	Own 59T	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01T	O41HV	303	506	Co	TX	84.06	7x2¾x.21	LT
55	Chs.Cowl.7G8TH	1591	158	158	14500	$4151	8.25/20^D	8.25/20^	Own 5GT	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 4GT	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01T	O41HV	303	506	Co	TX	84.06	7x2¾x.21	LT
	Heavy Duty COE																														
56	Cab Chs.791WH	1885	101	101	15000	$4498	8.25/20^D	8.25/20^	Own 59W	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01W	O41HV	303	506	Co	TX	60.06	7x2¾x.21	T
57	Cab Chs..79WH	1915	134	134	15000	$4633	8.25/20^D	8.25/20^	Own 59W	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01W	O41HV	303	506	Co	TX	93.06	7x2¾x.21	LT
58	Cab Chs.798WH	1945	158	158	15000	$4708	8.25/20^D	8.25/20^	Own 59W	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 59T-M■	SFD	H	5.83–8.11	Own 01W	O41HV	303	506	Co	TX	117.1	7x2¾x.21	LT
	School Bus																														
59	Cowl Chs.,.798T	1346	158	158	13500	$3970	7.50/20D	7.50/20	Own 59T	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	.....	7x2¾x.21	T
60	Cowl Chs..7G8T	1316	158	158	13500	$3970	7.50/20D	7.50/20	Own 5GT	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 4GT	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	.....	7x2¾x.21	T
61	Cowl Chs.,.794T	1434	194	194	14500	$4140	7.50/20D	7.50/20	Own 59T	8–3 7/16 x3⅜	239	6.7	180	100–3800	3–2½x4.96	N	Own 41T	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	.....	7x2¾x.21	LT
62	Cowl Chs..7G4T	1424	194	194	14500	$4140	7.50/20D	7.50/20	Own 5GT	6–3.3x4.4	226	6.7	180	90–3300	4–2½x4.88	N	Own 4GT	4	Own 01T	SF	H	** –6.66	Own 01T	O4IH	303	506	Co	TX	.....	7x2¾x.21	LT
63	Hudson (¾T. Pkp)	128	128		4810		6.50/16-6	6.50/16-6	Own 178	6–3x5	212	6.5	168	102–4000	3– ▲▲	N	Own	3	Own	8½	H	** –4.55	Own	B41H	141	242	C	2I	42½	7⅛x1¾x⅛	B
64	Intern'l (2)...KB-1	815	113	125	4400	2250	6.00/16-4	7.00/16	Own GRD214	6–3 7/16 x4½	213	6.3	160	82–3400	4–2¼x6‡‡	N	Own HD8-B	3	Own R1050	8½	H	3.72–5.11	Own F50	L41H	164	316	e	FX	38	6x2¼x⅛	C
65	KB-1M	770	102	113	4600	2150	6.00/16-4	6.50/16-6	Own GRD214	6–3 7/16 x4½	213	6.3	160	82–3400	4–2¼x6‡‡	N	O 8A-HD8-B	3	Own R1050	8½	H	3.72–5.11	Own F150	L41H	164	316	e	FX	.....	6½x2¼x⅛‡‡	C
66	KB-2	855	125	125	5200	2285	6.00/16-4	7.00/16-6	Own GRD214	6–3 7/16 x4½	213	6.3	160	82–3400	4–2¼x6‡‡	N	Own HD8-B	3	Own R1050	8½	H	3.72–5.11	Own F50	L41H	164	316	e	FX	50	6 7/16x2¼x⅛‡‡	C
67	KB-3	1005	130	....	6650	3000	7.00/16-6	7.50/16-6	Own GRD214	6–3 7/16 x4½	213	6.3	160	82–3400	4–2¼x6‡‡	N	Own HD8-B	3	Own R1150	8F	H	4.22–5.28	Own F150	L41H	195	367	e	FX	55	6½x2¼x⅛‡‡	C

(Turn to Page 86, please)

▽ Rear Only; Front 7.00/17.
● For shorter wheel bases—10x3½x¼.
§ Auxiliary trans. Spicer 703F, three forward speeds.
† Rear only; Front 9.00/20.
▲ Rear Only; Front 7.50/20
‡ For shorter wheel base 8½x2⅞x½.
▲▲ Diameter front 2.343. Center 2.375, Rear 2.406. Total length 5.750.
♦ Weight of complete vehicle with 5 gal. of gas.
▲ On 146" and 155" wheel bases, thickness is 7/16".
‖ Dual Rear only; Front 10.00/20
† Auxiliary trans. Spicer 6231B, three forward speeds.
‡ Two speed rear axle with vacuum shift and power braking.

All America wants something done about this kind of traffic congestion

Let's have improved streets and roads, of course—but let's also make better use of those we have

IN city after city all over the nation, they've taken the first important steps toward solving the serious post-war problem of traffic congestion.

Instead of waiting for new facilities, many enterprising communities are getting fine results by making better use of the streets they have.

Some simple changes often help

That jammed-up street you see pictured above doesn't look that way any more. But it was a civic headache until something constructive was done.

Changes in parking regulations proved a happy solution. Traffic really began to flow with smoothness and dispatch. Everybody saved time. Accidents decreased noticeably.

What cities of all sizes can do

Worth-while help on traffic planning is available to any municipality interested in a comprehensive long-range program.

The United States Public Roads Administration, highway departments, public works officials, state, county and local police, chambers of commerce and service groups will co-operate.

Meanwhile, it's often possible to make simple improvements immediately, merely by eliminating the conditions that lead to traffic bottlenecks and hazards. In this work, national, regional and local traffic safety organizations gladly assist.

All vehicles merit a fair deal

A few people mistakenly assume that traffic problems would be solved by ordering trucks off their local streets.

But the fact is, there's scarcely a community that could keep running 48 hours without trucks and the vital loads they transport.

The way out of traffic congestion is not through banning or penalizing certain types of vehicles. Truck operators, particularly, can be counted on to support all programs designed to help them load and unload their essential cargoes faster.

Booklet of ideas is available

To civic leaders, business executives and others interested in ideas for safer, more serviceable streets and roads, Studebaker recommends an unusual new 40-page booklet, "Making Better Use of Today's Streets." It's published by the Transportation and Communication Department of the Chamber of Commerce of the U.S.A. in Washington.

STUDEBAKER

PIONEER AND PACEMAKER IN AUTOMOTIVE PROGRESS

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(Continued from Page 84)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Sp'ds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	BRAKES SERVICE: Lining Area	BRAKES SERVICE: Drum Area	BRAKES SERVICE: Drum Material	BRAKES: Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
1	Internat'al Cont'd KB-3M	930	102	113	7000	2585	7.00/16-6	7.50/16-8	Own GRD214	6-3⅞x4½	213	6.3	160	82-3400	4-2½x6‡‡	N	Own H41B	4	Own R1150	SF	H	4.22-5.28	Own F150	L4IH	221	367	e	TX	....	6½x2¼x‡‡	C
2	(a) KB-5	1145	135	177	13500	3705	6.50/20D	8.25/20	O-GRD 233	6-3⅞x4½	233	6.3	181	93-3400	4-2½x6‡‡	N	Own H41B	4	Own R1360	SF	H	5.28-7.16	Own F350	LH4IH	294	509	e	TX	60	8x3x⅛	T
3	(a) KB-6	1625	134	176	14500	4625	7.00/20D	8.25/20	Own BLD250	6-3⅞x4½	251	6.3	200	100-3200	4-2½x5‡‡	N	Own WT97A	5	Own R1560	SF	H	5.62-7.16	Own 16F470	LH4IHV	305	539	e	TX	60	8¼x3x⅛	T
4	(a) KB-7	2100	134	176	16500	5055	7.50/20D	9.00/20	O-BLD 269	6-3⅞x4½	269	6.3	222	100-3000	4-2.7x5‡‡	N	Own F51	5	Own R1560	SF	H	6.50-7.16	Own F470	LH4IHV	368	633	e	TX	60	8¼x3x⅛	T
5	(a) KB-8	3050	137	197	20000	6580	9.00/20D	10.00/20	O-RED 361	6-4½x4½	361	6.3	282	126-3000	7-3¼x10‡‡	Y	Own F51	5	Own R1572	SF	H	6.43-8.51	Own F553	LH4IHV	407	700	e	PX	60	8‡‡x3½x⅛	T
6	(a) KB-10	3900	149	197	22500	7405	10.00/20D	11.00/20	Own RED401	6-4½x5	401	6.3	318	140-2800	7-3¾x10‡‡	Y	Own F52	5	Own R1676	SF	H	6.43-8 05	Own F653	LH4IHV	484	829	e	FX	72	9¼x3½x⅛	T
7	(a) KB-11	5300	149	197	27000	8130	10.00/20D	12.00/20	O-RED 450	6-4⅝x5	450	6.3	360	148-2600	7-3¾x10‡‡	Y	Own F54	5	Tim S200P	2SF	H	6.42-8 05	Own F750	WW4IA	746	1030	G	PX	72	10x3½x⅛	T
8	KB-12	6550	155	179	28500	9175	11.00/20	12.00/20	O-Con. R6596	6-4‡‡x5½	586	6.0	475	200-2600	7-3¾x13⅛	Y	Own F55	5	Tim S200P	2F	H	**—6.42	Own F750	BW41A	746	....	GS	FX	66	10x3½x⅛	C
9	(a) KB-14	7150	161	215	30000	10100	11.00/20	12.00/24	O-Con 6596	6-4‡‡x5½	586	6.0	475	200-2600	7-3¾x13⅛	Y	Own F55B	5	Tim U200P	2F	H	**—7.08	Own F750	BW41A	746	....	GS	FX	72	10x3½x⅛	C
10	W-3042-L	9500	179	227	30000	.....	10.00/20	11.00/22	O-Con. S6749	6-5½x5½	749	6.0	554	254-2600	7-3¾x15¾	Y	Spi 7741	4	Tim R-100	2F	H	**—6.42	Own S6303	BW41A	690	....	G	TX	84	10x3½x⅛	C
11	W-4042-OH	.....	170	230	40000	13115	10.00/20	14.00/24	Cum HB600	6-4½x6	672	17	492	150-1800	7-4½x..	Y	Spi 7741	4	Tim 79750PA	2F	H	7.69-11.36	Own 82F	BW41A	656	....	G	FX	72	10x3½x⅛	C
12	Kenworth(D) 521	.....	161	215	35000	12200	10 00/20	11.00/22	Cum HB6	6-4¼x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7841	4	Tim U200P	DR	H	6.42-7.84	Tim 36000 TW	Ws4IA	752	1050	a	TD	72	9½x3¼x⅛	C
13	585	.....	150	215	30000	10130	10.00/20	11.00/22	Bu LO525	6-4½x5½	525	5.5	385	150-2200	7-3x11½	Y	Fu 5A620	5	Tim 58415P	....	H	6.14	Tim 36000 TW	Ws4IA	752	....	a	....	70	9½x3¼x⅛	....
14	Linn L-2	.....	120	....	9000	6000	7.50/20S	8.25/20S	Her QXC3	6-3½x4½	221	....	159	77-3200	7-1¾x10	N	WGT9	4	Own 600	N	N	None	Tim F30B28 H	L4IH	306	478	a	T	.....	None	....
15	L-4	.....	156	....	9200	6200	7.50/20S	8.25/20	Her QXC3	6-3½x4½	221	....	159	77-3200	7-1¾x10	N	WGT9	4	Own 600	N	N	None	Tim F30B28 H	L4IH	306	478	a	X	.....	None	....
16	L-6	.....	169	....	12700	7700	7.50/20D	8.25/20	Her JXE3	6-3½x4½	245	6.5	184	91-3200	7-2½x10	N	WGT9	4	Own 600T	N	N	None	Tim F30B28 H	L6IH	486	744	a	X	.....	None	....
17	L-8	.....	205	....	12900	7900	7.50/20D	8.25/20	Her JXE3	6-3½x4¼	245	6.5	184	91-3200	7-2½x10	N	WGT9	4	Own 600T	N	N	None	Tim F30B28 H	L6IH	486	744	a	X	.....	None	....
18	Mar. Her. DVL-1	.....	90	118	$6750	.....	7.50/16S	8.25/18S	Willys MB	4-3⅛x4½	134	6.4	105	60-4000	3-2.33x5.48	Y	Own	3	(Front Drive)	.....	.....	7.10	Own	4IH	202	327	M2	.....	.....	None	....
19	Reo C-19A	.....	125	125	14000	4810▲	7.50/20	8.25/20	Own GC 245	6-3½x4¼	245	6.2	191	89-3100	7-2⅝x10.7	Y	WG T97	4	T53547–E300	SFd	H	5.66–6.16*	Tim 30000	T4IVH▼	310	482	var	TX	60⅝	8‡‡x2‡‡x½	T
20	C-19T	.....	125	125	14000	5280▲	8.25/20	8.25/20	Own GC 245	6-3½x4¼	245	6.2	191	89-3100	7-2⅝x10.7	Y	WG T97	4	Tim E300	HFd	H	6.13&8.10	Tim 30000	T4IVH▼	310	482	var	TX	60⅝	8‡‡x2‡‡x½	T
21	C-19B	.....	150	150	14000	4960▲	7.50/20	8.25/20	Own GC 245	6-3½x4¼	245	6.2	191	89-3100	7-2⅝x10.7	Y	WG T97	4	T53547–E300	SFd	H	5.66–6.16*	Tim 30000	T4IVH▼	310	482	var	TX	85⅝	8‡‡x2‡‡x½	T
22	C-19C	.....	165	165	14000	5030▲	7.50/20	8.25/20	Own GC 245	6-3½x4¼	245	6.2	191	89-3100	7-2⅝x10.7	Y	WG T97	4	T53547–E300	SFd	H	5.66–6.16*	Tim 30000	T4IVH▼	310	482	var	TX	100⅝	8‡‡x2‡‡x½	T
23	C-19L	.....	180	180	14000	5150▲	8.25/20	8.25/20	Own GC 245	6-3½x4¼	245	6.2	191	89-3100	7-2⅝x10.7	Y	WG T97	4	T53547–E300	SFd	H	5.66–6.16*	Tim 30000	T4IVH▼	310	482	var	TX	115⅝	8‡‡x2‡‡x½	TF
24	C-21T	.....	130	130	18000	6380▲	9.00/20	9.00/20	Own GC 288	6-3½x5	288	6.2	225	96-3000	7-2⅝x10.7	Y	Cla 205V–VO	5	Tim H300	HFd	H	6.13&8.15	Tim 31107	T4IVH▼	344	584	var	TX	65⅝	9x3x¼	T
25	C-21A	.....	130	130	18000	6090▲	9.00/20	9.00/20	Own GC 288	6-3½x5	288	6.2	225	96-3000	7-2⅝x10.7	Y	Cla 205V	5	Tim H300	HFd	H	6.13&8.15	Tim 31107	T4IVH▼	344	584	var	TX	65⅝	9x3x¼	T
26	C-21B	.....	150	150	18000	6080▲	8.25/20	9.00/20	Own GC 288	6-3½x5	288	6.2	225	96-3000	7-2⅝x10.7	Y	Cla 205V–VO	5	Tim H100–300	HFd	H	6.16–6.8*	Tim 31107	T4IVH▼	344	584	var	TX	85⅝	9x3x¼	T
27	C-21C	.....	165	165	18000	6220▲	9.00/20	9.00/20	Own GC 288	6-3½x5	288	6.2	225	96-3000	7-2⅝x10.7	Y	Cla 205V–VO	5	Tim H100–300	HFd	H	6.16–6.8*	Tim 31107	T4IVH▼	344	584	var	TX	100⅝	9x3x¼	TF
28	C-21L	.....	180	180	18000	6370▲	9.00/20	9.00/20	Own GC 288	6-3½x5	288	6.2	225	96-3000	7-2⅝x10.7	Y	Cla 205V	5	Tim H100–300	HFd	H	–6.8*	Tim 31107	T4IVH▼	344	584	var	TX	115⅝	9x3x¼	TF
29	C-22T	.....	130	130	20500	6630▲	9.00/20	9.00/20	Own GC 310	6-3⅝x5	310	6.2	243	101-3000	7-2⅝x10.7	Y	Cla 205V–VO	5	Tim H300	HFd	H	6.13&8.15	Tim 31107	T4IVH▼	344	584	var	TX	65⅝	9¼x3x⅛x⅛	T
30	C-22A	.....	130	130	20500	6220▲	9.00/20	9.00/20	Own GC 310	6-3⅝x5	310	6.2	243	101-3000	7-2⅝x10.7	Y	Cla 205V	5	Tim H300	HFd	H	6.13&8.15	Tim 31107	T4IVH▼	344	584	var	TX	65⅝	9¼x3x⅛x⅛	T
31	C-22B	.....	150	150	20500	6220▲	9.00/20	9.00/20	Own GC 310	6-3⅝x5	310	6.2	243	101-3000	7-2⅝x10.7	Y	Cla 205V–VO	5	Tim H Series	HFd	H	6.16–7.3*	Tim 31107	T4IVH▼	344	584	var	TX	85⅝	9¼x3x⅛x⅛	T
32	C-22C	.....	165	165	20500	6410▲	9.00/20	9.00/20	Own GC 310	6-3⅝x5	310	6.2	243	101-3000	7-2⅝x10.7	Y	Cla 205V–VO	5	Tim H100–300	HFd	H	6.16–6.8*	Tim 31107	T4IVH▼	34a	584	var	TX	100⅝	9¼x3x⅛x⅛	TF
33	C-22L	.....	185	185	20500	6490▲	9.00/20	9.00/20	Own GC 310	6-3⅝x5	310	6.2	243	101-3000	7-2⅝x10.7	Y	Cla 205V	5	Tim H100–300	HFd	H	6.16*	Tim 31107	T4IVH▼	344	584	var	TX	120⅝	9¼x3x⅛x⅛	TF
34	C-23T	.....	130	130	23000	8100▲	10.00/20	10.00/20	Con T-6371	6-4⅛x4⅝	371	6.3	296	133-2800	7-2½x13.5	Y	Cla 270V-VO	5	Tim L-Series	HF	H	6.83*	Tim 32500	Ws1IA	514	784	Var	TX	65⅝	9¼x3x⅛x⅛	T
35	C-23B	.....	150	150	23000	7380▲	10.00/20	10.00/20	Con T-6371	6-4⅛x4⅝	371	6.3	296	133-2800	7-2½x13.5	Y	Cla 270VO	5	Tim L-200	HF2	H	8.22	Tim 32500	T41VH▼	370	644	Var	TX	85⅝	9¼x3x⅛x⅛	T
36	C-23L	.....	185	185	23000	7500▲	10.00/20	10.00/20	Con T-6371	6-4⅛x4⅝	371	6.3	296	133-2800	7-2½x13.5	Y	Cla 270VO	5	Tim L-100-300	HF	H	6.83*	Tim 32500	Ws1IA	514	784	Var	TX	120⅝	9¼x3x⅛x⅛	Tf
37	C-25T	.....	130	130	27400	8700▲	10.00/20	10.00/20	Con T-6427	6-4⅞x4¼	427	6.2	340	153-2800	7-2½x13.5	Y	Cla 270V-VO	5	Tim Q300	HFd	H	6.53–8.53	Tim 35000	Ws4IA	586	848	Var	TX	65⅝	9¼x3x⅛x⅛	T
38	C-25B	.....	150	150	27400	8570▲	10.00/20	10.00/20	Con T-6427	6-4⅞x4¼	427	6.2	340	153-2800	7-2½x13.5	Y	Cla 270VO	5	Tim S200P	HF2	H	7.84	Tim 35000	Ws1IA	660	952	Var	TX	85⅝	9¼x3x⅛x⅛	T
39	C-25BT	.....	150	150	27400	9360▲	10.00/20	10.00/20	Con T-6427	6-4⅞x4¼	427	6.2	340	153-2800	7-2½x13.5	Y	Cla 270VO&▽	15	Tim S200P	HF2	H	7.84	Tim 35000	Ws1IA	660	952	Var	TX	85⅝	9¼x3x⅛x⅛	T
40	C-25BL	.....	150	150	27400	9310▲	10.00/20	10.00/20	Con T-6427	6-4⅞x4¼	427	6.2	340	153-2800	7-2½x13.5	Y	Cla 270V&■	15	Tim S200P	HF2	H	7.84	Tim 35000	Ws1IA	660	952	Var	TO	85⅝	9¼x3x⅛x⅛	T
41	C-25L	.....	185	185	27400	8700▲	10.00/20	10.00/20	Con T-6427	6-4⅞x4¼	427	6.2	340	153-2800	7-2½x13.5	Y	Cla 270V	5	Tim S200P	HF2	H	7.84	Tim 35000	Ws1IA	660	952	Var	TX	120⅝	9¼x3x⅛x⅛	Tf
42	30A	.....	145▲	145	32000	12000▲	11.00/20	11.00/24	Con R6513	6-4½x5½	513	5.9	400	170-2600	7-3¼x14.5	Y	Spi 6252–53●	5	TS300–U200	HF2	H	7.84*	Tim 36000	Ws4IA	722	1052	var	TI	67	10¼x3¼x⅛	T
43	30B	.....	165▲	165	32000	12750▲	11.00/20	11.00/24	Con R6513	6-4½x5½	513	5.9	400	170-2600	7-3¼x14.5	Y	Spi 6252–53●	5	TS300–U200	HF2	H	–7.84*	Tim 36000	Ws4IA	722	1052	var	TI	87	10¼x3¼x⅛	T
44	31A	.....	145▲	145	32000	12000▲	11.00/20	11.00/24	Con R6602	6-4½x5½	602	5.9	464	200-2600	7-3¼x14.5	Y	Spi 6252–53●	5	TS300–U200	HF2	H	–7.84*	Tim 36000	Ws4IA	722	1052	var	TI	87	10¼x3¼x⅛	T
45	31B	.....	165▲	165	32000	12750▲	11.00/20	11.00/24	Con R6602	6-4½x5½	602	5.9	464	200-2600	7-3¼x14.5	Y	Spi 6252–53●	5	TS300–U200	HF2	H	–7.84*	Tim 36000	Ws4IA	722	1052	var	TI	87	10¼x3¼x⅛	T
46	Sterling HD97	.....	148	175	24000	9150	9.00/20	11.00/20	Wau 6MZA	6-4¼x4¼	404	5.6	290	130-3000	7-2⅝x12½	Y	Fu 5A43	5	Tim Q100DPH	FHy	R	5.29–7.80	Tim 35011H	T4IHV	466	822	A	TX	67	9x7x¼	A
47	HD105	.....	148	175	24000	9550	10.00/20	11.00/22	Wau 6MZA	6-4¼x4¼	404	5.6	290	130-3000	7-2⅝x12½	Y	Fu 5A43	5	Tim R100DPH	FHy	R	5.29–7.40	Tim 35011H	T4IHV	524	926	A	TX	67	9x3¼x¼	A
48	HD115	.....	148	175	32000	10650	10.00/20	11.00/24	Wau 6SRKR	6-4⅝x5½	517	5.5	368	125-2250	7-3x13⅜	Y	Fu 5A62	5	Tim S200P	2F	R	7.77–8.53	Tim 36000 TW	Ws4IA	722	1054	A	TX	67	9x3¼x¼	A
49	HD145	.....	148	175	36000	11250	11.00/20	12.00/24	Wau 6SRKR	6-4⅝x5½	517	5.5	368	125-2250	7-3x13⅜	Y	Fu 5A62	5	Tim 79721W	2F	R	7.69–11.36	Tim 36000 TW	Ws4IA	614	922	A	TX	67	9¼x3½x3½	A
50	(D) HD115H	.....	158	185	32000	11950	10.00/20	11.00/24	Cum HB600	6-4½x6	672	17	500	150-1800	7-4½x16½	Y	Fu 4B86	4	Tim S200P	2F	R	7.77–8.53	Tim 36000 TW	Ws4IA	722	1054	A	TX	68	9x3¼x¼	A
51	(D) HD145H	.....	158	185	36000	12550	11.00/20	12.00/24	Cum HB600	6-4½x6	672	17	500	150-1800	7-4½x16½	Y	Fu 4B86	4	Tim 79721W	2F	R	7.69–11.36	Tim 36000 TW	Ws4IA	614	922	A	TX	68	9¼x3½x3½	A
52	HC97	.....	148	175	24000	9200	9.00/20	11.00/20	Wau 6MZA	6-4¼x4¼	404	5.6	290	130-3000	7-2⅝x12½	Y	Fu 5A43	5	Own 97H	CS	R	6.70–10.82	Tim 35011H	T41HV	540	842	A	TX	67	9x7x¼	A
53	HC105	.....	148	175	28000	9700	10.00/20	11.00/22	Wau 6MZA	6-4¼x4¼	404	5.6	290	130-3000	7-2⅝x12½	Y	Fu 5A43‡	15	Own 137H	CS	R	6.70–10.82	Tim 35011H	TL4IHV	540	842	A	TX	67	9x3¼x¼	A
54	HC115	.....	148	175	32000	10350	10.00/20	11.00/24	Wau 6SRKR	6-4⅝x5½	517	5.5	368	125-2250	7-3x13⅜	Y	Fu 5A62‡	15	Own 137W	CS	R	6.70–10.82	Tim 36000 TW	Ws4IA	648	974	A	TX	67	9x3¼x¼	A
55	HC144	.....	148	175	36000	11250	10.00/22	12.00/24	Wau 6SRKR	6-4⅝x5½	517	5.5	368	125-2250	7-3x13⅜	Y	Fu 5A62‡	15	Own 148W	CS	R	6.70–10.82	Tim 36000 TW	Ws4IA	708	1042	A	TX	67	9¼x3½x3½	A
56	HC147	.....	148	175	36000	11500	10.00/22	12.00/24	Wau 6SRKR	6-4⅝x5½	517	5.5	368	125-2250	7-3x13⅜	Y	Fu 5A62‡	15	Own 147W	CS	R	6.70–10.82	Tim 36000 TW	Ws4IA	708	1042	A	TX	67	9¼x3½x3½	A
57	HC175	.....	167	185	45000	14600	12.00/24†	14.00/24‡	Wau 145GK	6-5¼x6	779	6.2	585	186-2100	7-3½x17¾	Y	Fu 4B86●	12	Own 175W	CS	R	7.31–12.42	Tim 27454W	Ws4IA	786	1152	A	TX	77	9¼x3½x3½	A
58	HC250	.....	178	190	60000	18400	14.00/24‡	14.00/24‡	Wau 145GK	6-5¼x6	779	6.2	585	186-2100	7-3½x17¾	Y	Fu 4B86●	12	Own 251W	CS	R	7.31–12.42	Tim 27454W	Ws4IA	786	1157	A	JX	95	12x3½x¾	AL
59	(D) HC115H	.....	167	185	32000	12250	10.00/20	11.00/24	Cum HB600	6-4½x6	672	17.	500	150-1800	7-4½x16½	Y	Fu 4B86●	12	Own 137W	CS	R	6.70–10.82	Tim 36000 TW	Ws4IA	648	974	A	TX	77	9x3¼x¼	A
60	(D) HC175H	.....	167	185	45000	14930	12.00/24†	14.00/24‡	Cum HBD600	6-4½x6	672	17.	500	150-1800	7-4½x16½	Y	Fu 4B86●	12	Own 175W	CS	R	7.31–12.42	Tim 27454W	Ws4IA	786	1152	A	TX	77	9¼x3½x3½	A
61	(D) HC250H	.....	178	190	60000	18700	14.00/24‡	14.00/24‡	Cum HBD600	6-4¼x6	672	17.	500	150-1800	7-4½x16½	Y	Fu 4B86●	12	Own 251W	CS	R	7.31–12.42	Tim 27454W	Ws4IA	786	1152	A	JX	95	12x3½x¾	AL
62	Studebaker M5	.....	113	113	4500	2120	6.50/16S	6.50/16S	Own 1M	6-3x4	170	6.5	134	80-4000	4-2⅛x5	N	Own 664949	3	Own 663597	Hy	H	** –4.82	Own 664307	L4IH	157	276	Co	2I	45‡‡	7‡‡x2‡‡x⅛	T
63	M15A-20	.....	120	120	7800	2960	7.00/17S	7.50/17	Own 2M	6-3x4	170	6.5	134	80-4000	4-2⅛x5	N	Own 673674	4	Own 677768	SF	H	5.83–6.60	Own 676461	LH4IH	216	342	a	TX	52‡‡	7‡‡x2‡‡x⅛	T
64	M15A-28	.....	128	128	10000	3060	7.50/17S	7.50/20	Own 2M	6-3x4	170	6.5	134	80-4000	4-2⅛x5	N	Own 673674	4	Own 665174	SF	H	6.60–5.83	Own 676461	LH4IH	216	342	a	TX	60‡‡	8¼x2½x½	T
65	M16	.....	128	195	13500	3630	7.00/20D	8.25/20	Own 3M	6-3⅞x4¼	226	6.5	176	94-3600	4-2½x5‡‡	Y	Own 674989	4	Own 665171	SF	H	5.66–6.66	Own 664452	LH4IH	280	442	Co	TX	60‡‡	8¼x2‡‡x½	T
66	M16(2–8p)	.....	128	195	15000	3955	7.00/20D	8.25/20	Own 3M	6-3⅞x4¾	226	6.5	176	94-3600	4-2½x5‡‡	Y	Own 674989	4	Own 676055	HyF	H	6.13–8.10	Own 664452	LH4IH	280	442	Co	TX	60‡‡	8¼x2‡‡x⅛	T
67	Truckstell(C) F18-5	.....	140	194	18500	▲5365	7.50/20*	9.00/20	Ford	8-3⅛x3¾	239	6.4	180	100-3800	3-2⅛x4.71	N	Ford & BL	12	Cla R1250	SF	H	5.67–6.83	Ford	L4IHV	390	600	a	TX	65¾	7½x3x.47	CTf
68	(C) F19-5-0	.....	108	166	19500	▲5615	7.50/20*	9.00/20	Ford	8-3⅛x3¾	239	6.7	180	100-3800	3-2⅛x4.71	N	Ford & BL	12	Cla R1250	SF	H	5.67–6.83	Ford	L4IHV	390	600	a	TX	65¾	7½x3x.47	CTf
69	(C) C18-5	.....	147	195	18500	▲5530	7.50/20*	9.00/20	Chevrolet	6-3⅜x3⅛	235	6.6	192	93-3100	4-2¾x5	N	Chev & BL	12	Cla R1250	SF	H	5.67–6.83	Chevrolet	L4IHV	399	600	a	TX	70	9½x3x.50	CTf
70	(C) C19-5-0	.....	120	180	19500	▲5700	7.50/20*	9.00/20	Chevrolet	6-3⅜x3⅛	235	6.6	192	93-3100	4-2¾x5	N	Chev & BL	12	Cla R1250	SF	H	5.67–6.83	Chevrolet	L4IHV	399	600	a	TX	70	9½x3x.50	CTf
71	Ward La Fr. D-1A	5340	149	220	25000	9500	10.00/20	11.00/20	Con B6427	6-4⅞x4⅞	427	5.1	325	127-2600	7-2⅛x13½	Y	Ful 5A430	5	Tim 58415PA	B	R	**–6.1	Tim 35011TW	Ws4A	600	928	C	TM	68¼	9¼x3x¼	....
72	D-1B	6500	149	220	25000	9500	10.00/20	11.00/20	Con 22R	6-4½x5¼	501	5.4	384	148-2400	7-2¾x14½	Y	Ful 5A620	5	Tim Q-100	B	R	**–6.83	Tim 35011TW	Ws4A	600	928	C	TM	68¼	9¼x3x¼	....
73	D-1C	6000	162	220	29000	9500	11.00/20	11.00/22	Con B6427	6-4¼x4½	427	5.1	325	127-2600	7-2⅛x13½	Y	Ful 5A430	5	Tim S-200P	S2	R	**–7.84	Tim 35011TW	Ws4A	673	1031	C	TM	68¼	9¼x3x¼	....
74	D-2K	7400	149	220	29000	10000	11.00/20	11.00/22	Wau 140GK	6-4½x5½	525	6.4	425	168-2400	7-2¾x13‡‡	Y	Ful 5A620	5	Tim S-200P	S2	R	**–7.84	Tim 35011TW	Ws4A	673	1031	C	TM	68¼	10x3½x⅛	....

(Turn to Page 88, please)

▲ Includes Cab.
‡ Rear only; Front 11.00/24.
* 6231A Spicer Auxiliary Transmission.
† Rear only; Front 12.00/24.
▽ Front only; Rear 8.25/20.
‡ Auxiliary transmission, Own OJ.
● Auxiliary transmission Own FJ
■ 8031 F-G Spicer Transmission available.
* 2-Speed Axle Available.
▼—Lockheed Type Front and Timken Dual Primary Rear Brakes.
^ Special W.B.'s available on request.
‡ 8200 for 8.25/18 tires.
# 6231 Spicer Auxiliary Transmission.

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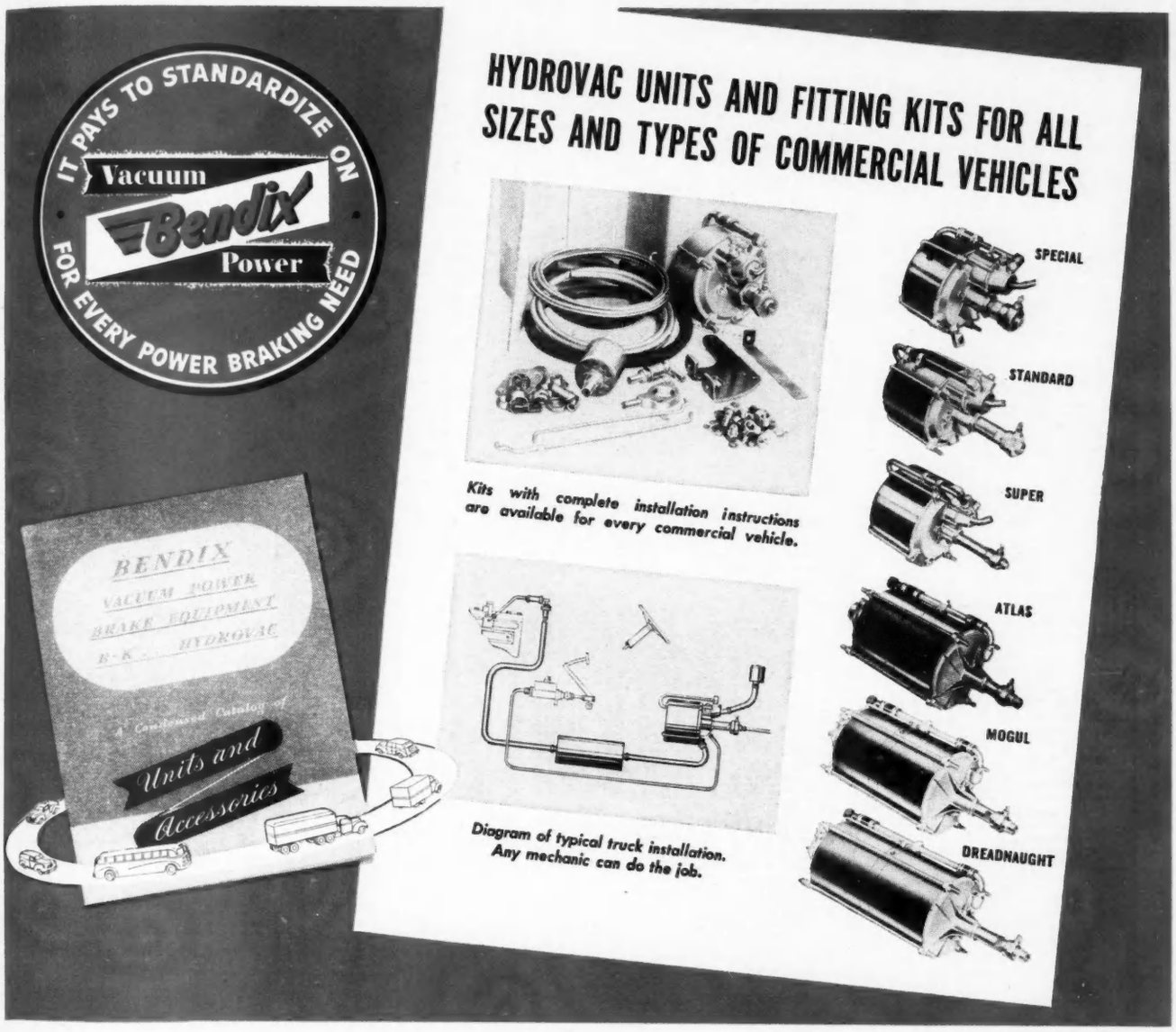

The pages of the Bendix Vacuum Power Brake Catalog make up a "bible of power braking". Here is the answer to every power braking problem. Hydrovac in its many sizes, and B-K equipment for all kinds of trailer use and conversions, meet every requirement—from light equipment to heavy. Complete and simplified kits reduce every installation to the fewest parts and the minimum time to do the job properly. Your Bendix distributor will show you how easy and inexpensive it is to make your equipment as efficient as any on the road.

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BENDIX PRODUCTS DIVISION of
SOUTH BEND 20, INDIANA

Bendix
AVIATION CORPORATION

(Continued from Page 86)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Dual unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number, Diameter and Length	Governor Standard	TRANSMISSION Make and Model	TRANSMISSION Forward Sp'ds	REAR AXLE Make and Model	REAR AXLE Gear and Type	REAR AXLE Drive & Torque	REAR AXLE Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operat'g	BRAKES SERVICE Lining Area	BRAKES SERVICE Drum Area	BRAKES SERVICE Drum Material	BRAKES Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME Side Rail Dimensions	FRAME Type
	Ward La Fr.																														
1	Cont'd.....D-2Z	7550	149	220	29000	10000	11.00/20	11.00/20	Wau 140GZ	6–4½x5½	554	6.4	456	184–2400	7–3¼x13¼	Y	Ful 5A650	5	Tim S-200P	S2	R	**–7.84	Tim 35011TW	Ws4A	673	1031	C	TM	68¼	10x3½x⅄	.....
2	.....D-2B	7285	162	220	29000	10000	11.00/20	11.00/22	Con 22R	6–4½x5¼	501	5.4	384	148–2400	7–2¾x14½	Y	Ful 5A620	5	Tim S-200P	B	R	**–7.84	Tim 35011TW	Ws4B	673	1031	C	TM	68¼	10x3½x⅄	.....
3	.....D-3	7900	149	220	29000	10000	11.00/20	11.00/22	Con R6572	6–4¼x5¼	572	5.9	440	189–2600	7–3¼x14½	Y	Ful 5A650	5	Tim S-200P	S2	R	**–7.84	Tim 35011TW	Ws4B	673	1031	C	TM	68¼	10x3½x⅄	.....
4	.....D-3S	8050	149	220	29000	10000	11.00/20	11.00/22	Con R6602	6–4½x5½	602	5.9	463	198–2600	7–3¼x14½	Y	Ful 5A650	5	Tim S-200P	S2	R	**–7.84	Tim 35011TW	Ws4B	673	1031	C	TM	68¼	10x3½x⅄	.....
5	.....D-5	10300	149	220	35000	12500	11.00/22	11.00/24	Cum HB600	6–4½x6	672	17	500	150–1800	7–4½x16¾	Y	Ful 5A650	5	Tim U-200	S2	R	**–6.42	Tim 27454	Ws4B	681	1041	C	TM	68¼	10x3½x⅄	.....
6	Willys (Sd.Del.)463	1285*	104	104	4000	*2752	6.50/15S	.....	Own 463	4–3¼x4½	134	6.5	105	63–4000	3–2.33xo.48	N	WG T96	3	Spl 23–1	Hy½	H	4.88–5.38	Own I Tr	B4IH	133	220	a	2I	.....	5x2½x.063	TfD
7	Willys.....2WD	1189▲	118	118	5300	▲2788	6.50/16S	7.00/16S	Own 2WD	4–3¼x4½	134	6.5	105	60–4000	3–2.33x5.48	N	WG T90E	3	Tim51540NX2	S½	H	5.38–6.17	Cla F-154	B4IH	176	276	a	2I	42.28	5½x2x⅄	TD
	Four-Wheel-Drive																														
8	Corbitt.....22FG	.....	159	Opt	22000	.....	9.00/20	10.00/20	Con B6371	6–4¼x4½	371	6.0	280	100–2600	7–2¾x13½	Y	Fu 5A43	5	Tim R2090H	2F	H	** –8.43	Tim F2090H	L4IHV	....	868	a	TD	74	9x3x¼	DL
9	Dodge....B-1-PW	.....	126	126	8700	.....	7.50/16-8	9.00/16-8	Own T-137	6–3¼x4½	230	6.7	185	94–3200	4–2½x4.8	Y	NP-38580	4	Own T-137	HyF	H	4.8–5.8	Own T-137	O4IH	210	311	Co	TX	52½	⅄x2⅄x6½	C
10	FWD.....HA	.....	132	156	17000	▲7470	8.25/20D	10.00/20	Wau BZ	6–4x4¼	320	5.9	237	104–3000	7–2½x10¼	Y	Own H	5	Own H	SF	H	6.6 –9.06	Own H	L4IHV	391	807	a	T4	79½	9x3x¼	T
11	.....HR	.....	132	154	20000	▲8000	9.00/20	10.00/20	Wau MZA	6–4¼x4¾	401	5.6	291	129–2800	7–2½x12½	Y	Own H	5	Own H	SF	H	6.6 –9.06	Own H	L4IHV	391	807	a	T4	79½	9x3x¼	T
12	.....HC	.....	154	154	20000	▲8050	9.00/20	10.00/20	Wau MZA	6–4¼x4¾	404	5.6	291	129–2800	7–2½x12¾	Y	Own H	5	Own H	SF	H	6.6 –9.06	Own H	L4IHV	391	807	a	T4	89¾	7⅄x3x⅄	C
13	.....SU	.....	150	182	28000	▲10570	11.00/20D	11.00/20	Wau SRKR	6–4½x5½	517	5.5	365	126–2400	7–3x13½	Y	Own U	5	Own U	BF	H	6.7 –9.8	Own U	L4IHV	512	867	a	T4	90	8⅄x3x⅄	C
14	.....M7	.....	150	180	38600	▲15500	12.00/20D	12.00/24	Wau 145GK	6–5¼x6	779	6.2	585	186–2000	7–3½x17¼	Y	Own M	10	Tim 1758	2F	H	** –7.33	Wis F409	Ws4IA	578	976	a	T4	90	10⅄x3x⅄	C
15	(D).....M7D	.....	150	180	38600	▲15700	12.00/20D	12.00/24	Bu DC844	6–⌀5¼x6½	844	...	605	180–1800	7–3¾x17	Y	Own M	10	Tim 1758	2F	H	** –7.33	Wis F409	Ws4IA	578	976	a	T4	90	10⅄x3x⅄	C
16	(D).....M10D	.....	150	180	44000	▲16400	11.00/24D	12.00/24	Bu DC844	6–5¼x6½	844	...	605	180–1800	7–3¾x17	Y	Own M	10	Tim 79721	2F	H	** –7.7	Wis F409	Ws4IA	614	1030	a	T4	90	10⅄x3x⅄	C
17	Marmon-MH440-4	.....	158	170	22500	▲8700	9.00/20D	10.00/20	Her WXLC3	6–4¼x4¼	404	5.4	293	118–2800	7–2½x13¼	Y	Fu 5A430	5	Tim R2090W	2B	H	** –8.43	Tim F2090W	W....A	584	887	c	F	72	9⅄x3x¼	T
18	Herr...MH555-4	.....	161	173	28000	▲10200	10.00/20D	11.00/20	Her RXC	6–4½x5¼	529	6.3	390	131–2200	7–3x13¼	Y	Fu 5A620	5	Tim R3100W	2B	H	** –8.15	Tim F3100W	W....A	692	1039	c	F	72	10⅄x3x⅄	T
19	(C).....CM5-4	.....	134	134	13500	▲4847	7.50/20D	7.50/20	Ford	8–3⅄x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –6.67	Own M5	F.....H	303	563	a	F	60⅄	7x2¾x⅄	T
20	(C).....CM6-4	.....	158	158	13500	▲4973	7.50/20D	7.50/20	Ford	8–3⅄x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –6.67	Own M5	F.....H	303	563	a	F	84⅄	7x2¾x⅄	T
21	(C).....LD6P-4	.....	114	....	.....	.....	15*	15*	Ford	8–3⅄x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	T	** –4.11	Own O	F.....H	162	....	A	F	.....	.....	X
22	(C).....LD6-4	.....	114	....	4700	▲2719	15*	15*	Ford	8–3⅄x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –4.11	Own O	F.....H	162	....	A	F	40⅄	5⅄x2¼x⅄	T
23	(C).....OT5-4	.....	122	....	6800	▲4500	7.50/17	7.50/17	Ford	8–3⅄x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	S	H	** –4.86	Own I	F.....H	186	....	A	F	48	6x2¼x⅄	T
24	Oshkosh....W-312	.....	149	204	25000	10200	10.00/20	11.00/20	Her WXLO3	6–4¼x4¼	404	6.3	312	139–2500	7–2½x13¼	Y	Fu 5A43	5	Own W312	8F	H	** –7.8	Own W312	L4II	560	867	G	TX	82	8¼x3x¼	TF
25	.....W1700	.....	150	205	28000	11000	11.00/20D	12.00/20S	Her RXC	6–4½x5¼	529	5.4	395	131–2200	7–3x13¼	Y	Fu 5A620	5	Own W1700	SF	H	** –6.4	Own 1700	L4IH	630	975	G	TX	82	8¼x3x¼	TF
26	.....W-700	.....	150	204	30000	▲12000	11.00/20	12.00/20S	Her RXCO	6–4½x5¼	529	5.4	395	131–2200	7–3x12¾	Y	Fu 5A620	10	Own W700	2F	H	** –6.6	Own W700	L4IH	630	975	G	TX	82	10⅛x3x3½	TF
27	.....W-703	.....	150	204	30000	▲12200	11.00/20	12.00/20S	Her RXLD	6–4¾x5¼	558	5.4	430	150–2200	7–3½x13¼	Y	Fu 5A620	10	Own W700	2F	H	** –6.6	Own W700	L4IH	630	975	G	TX	82	10⅛x3x3½	TF
28	(D).....W-906	.....	158	190	38000	▲15600	12.00/20	14.00/20S	Cum HB600	6–4⅞x6	672	...	500	150–1800	7–4½x16	Y	Fu 4A86	12	Own W906	2F	H	** –6.2	Own W906	LT4IWS	645	975	G	TX	90	10⅛x3½x3½	TF
29	.....W2200	.....	160	181	40000	16500	13.00/20D	14.00/20S	Bu MO779	6–5¼x6	779	...	575	188–2100	7–3¾x17	Y	Fu 4A86	12	Own W2200	2F	H	** –6.14	Own 2200	LT4IA	645	975	G	TX	90	10¼x3½x3½	TF
30	.....W2201	.....	160	181	40000	16500	13.00/20D	14.00/20S	Bu MO893	6–5⅝x6	893	...	625	200–1800	7–3¾x17	Y	Fu 4A86	12	Own W2200	2F	H	** –6.14	Own 2200	LT4IA	645	975	G	TX	90	10¼x3½x3½	TF
31	(D).....W2204	.....	160	181	46000	18500	13.00/20D	14.00/24	Bu 6DC844	6–5¼x6	844	...	605	180–1800	7–3¾x17	Y	Fu 4A86	12	Own W2204	2F	H	** –6.4	Own 2204	LT4IA	740	1190	G	TX	90	10¼x3½x3½	TF
32	Peterbilt(D)270DD	.....	165	Opt	27000	12500	10.00/20D	11.00/22	Cum HB600	6–4¼x6	672	17	500	150–1800	7–4½x16½	Y	Spl 7741	12	U-200P	2F	R	** –6.42	Tim 36000W	Ws4IA	800	1250	a	FD	80½	10⅛x3½x⅄	TL
33	Sterling...DD115	.....	160	178	32000	11500	10.00/20	11.00/24	Wau 6SRKR	6–4½x5¼	517	5.5	368	125–2250	7–3x13¾	Y	Fu 5A62†	10	Tim 1357W	2F	R	6.65–8.6	Tim F3110W	Ws4IA	644	984	A	TX	76	9x3¼x¼	A
34	(D)....DD145H	.....	167	185	36000	13900	11.00/20	12.00/24	Cum HB600	6–4¼x6	672	17	500	150–1800	7–4½x16½	Y	Fu 4B86‡	12	Tim 1758W	2F	R	7.33–10.3	Tim F409CW	Ws4IA	644	984	A	TX	77	9¼x3½x3½	A
35	Walter(c.f.)....FN	.....	126	150	20000	7500	9.00/20D	10.00/20S	Wau MZA	6–4¼x4¼	404	5.6	290	125–2600	7–2½x12½	Y	Own FN	6	Own FNB	2	H	6.0–8.0	Own FN	O4IA	470	670	G	FI	84	7x2¼x¼	C
36	(c.f.)...FZM	.....	126	150	24000	8500	10.00/20D	12.00/20S	Wau MZA	6–4¼x4¼	404	5.6	290	125–2600	7–2½x12½	Y	Own FN	6	Own FMB	2	H	6.0–8.0	Own FJ	O4IA	470	670	G	FI	84	12x3½x3½	B
37	(c.f.)...FCK	.....	126	138	30000	10500	11.00/24D	11.00/24S	Wau SRKR	6–4½x5¼	517	5.5	365	125–2200	7–3x13¾	Y	Own FC	6	Own FCB	2	H	7.5–9.0	Own FC	O4IA	585	890	D	FI	84	13x3¼x3½	B
38	(c.f.)....FC	.....	138	162	32000	11000	11.00/24D	12.00/24S	Wau SRKR	6–4½x5¼	517	5.5	365	125–2200	7–3x13¾	Y	Own FC	6	Own FCB	2	H	7.5–9.0	Own FCR	O4IA	585	890	D	FI	96	14x3¼x3½	B
39	(c.f.)...FGB	.....	126	162	32000	12000	11.00/24D	12.00/24S	Wau 145GK	6–5¼x6	779	5.7	580	185–2000	7–3½x17¼	Y	Own FA	6	Own FCB	2	H	7.5–9.0	Own FCR	O4IA	585	890	D	FI	84	14x3¼x3½	B
40	(c.f.)...FGR	.....	126	162	42000	13000	12.00/24D	12.00/24	Wau 145GK	6–5¼x6	779	5.7	580	185–2000	7–3½x17¼	Y	Own FA	6	Own FCR	2	H	7.5–9.0	Own FCR	O4IA	585	890	D	FI	89	14x3¼x3½	B
41	Willys Unv. Jp...CJ-2A	•1146	80	80	3500	*2169	6.00/16	7.00/15	Own CJ-2A	4–3¼x4¼	134	6.5	105	60–4000	3–2.33x5.48	N	WG T90A	6*	Spl 41-2	Hy½	H	** –5.38	Spl 25	B4IH	118	198	a	F		4x1¼x⅄	P
42	.....4WD	▲1495	118	118	5300	▲2920	7.00/16	.....	Own 4WD	4–3¼x4½	134	6.5	105	60–4000	3–2.33x5.48	Y	WGT90A	6*	Tm 51540NXZ	S½	H	** –5.38	Spl 25	B4IH	176	276	a	2I	42.28	5½x2x⅄	TD
	Six-Wheelers Wheels ▼ Driven																														
43	Federal....663MA	.....	189	225	40000	14500	10.00/20	10.00/22	Con R6602	6–4⅛x5¼	602	6.1	464	200–2600	7–3¼x14½	Y	Fu 5A65▼	15	T SW3012P	WF	R	** –6.16	Tim 36000TW	Ws6IA	1082	1569	a	TD	108	10½x3½x⅄	T
44	.....664MAB	.....	189	225	55000	15850	11.00/22	12.00/20	Con R6602	6–4¼x5½	602	6.1	464	200–2600	7–3¼x14½	Y	Spl 7741▼	12	Tim SW456P	WF	R	** –7.6	Tim 27452W	Ws6IA	1308	1888	a	TD	108	10½x3½x⅄	T
45	.....664MA	.....	189	225	55000	1o950	11.00/22	12.00/20	Con R6602	6–4½x5½	602	6.1	464	200–2600	7–3¼x14½	Y	Spl 7741▼	12	Tim SD462P	BR	R	** –8.15	Tim 27452W	Ws6IA	1092	1624	a	TD	108	10½x3½x⅄	T
46	F.W.D.....M6x6	.....	Opt	Opt	58000	▲21400	11.00/24D	11.00/24	Wau 145GK	6–5¼x6	779	6.2	585	186–2000	7–3½x17¼	Y	Own M	10	Wis SD462	2F	L	** –10.6	Wis F409	Ws6IA	1080	1680	a	T6	183	10⅄x3x⅄	P
47	(D)....M6X6D	.....	Opt	Opt	58000	▲21600	11.00/24D	11.00/24	Bu DC844	6–5¼x6½	844	...	605	180–1800	7–3¾x17	Y	Own M	10	Wis SD462	2F	L	** –10.6	Wis F409	Ws6IA	1080	1680	a	T6	216	10⅄x3x⅄	P
48	International (2)																														
49	.....KB-6F.4R	3150	151	194	22000	6915	7.00/20D	8.25/20	Own BLD250	6–3⅄x4½	251	6.3	200	100–3200	4–2¾x5⅄	N	Own F51	5	Own RF1450	SF	H	6.16–6.66	Own F470	LH4IHV	495	869	c	PX	77	8⅄x⅄x⅄	T
50	.....KB-8F.4R	4700	161	215	27000	8575	8.25/20D	9.00/20	Own RED361	6–4½x4½	361	6.3	282	126–3000	7–3¼x10⅄	Y	Own F52	5	Own RF1560	SF	H	6.50–7.16	Own F550	LH6IHV	644	1105	c	PX	84	9½x3⅄x3½	T
51	.....KB-11F.4R	7125	161	215	37000	10830	9.00/20D	10.00/20	Own RED450	6–4¾x5	451	6.3	360	148–2600	7–3¼x10⅄	Y	Own F54	5	Own RF1670	SF	H	** –7.16	Own F760	TW6IA	738	1179	G	PX	84	10⅄x⅄x3½	T
52	.....W4064L	12425	203	239	40000	15750	10.00/22	11.00/22	Cum HB600	6–4⅞x6	672	17	492	150–1800	7–4½x....	Y	Spl 7741	4	Tim SW3012	WF	L	4.71–6.16	Own 82F	BW4IA	876	.....	.....	FX	108	10x3½x⅄	C
53	.....W4564OH	13200	188	242	45000	17160	10.00/22	11.00/22	Cum HB600	6–4⅞x6	672	17	492	150–1800	7–4½x....	Y	Spl 7741	4	Tim SW456	WF	H	6.00–7.6	Own 83F	BW4IA	1020	.....	.....	FX	90	10x3½x⅄	C
54	.....W6564OH	15700	206	284	65000	.....	11.00/24	12.00/24	Cum HB600	6–4⅞x6	672	17	492	150–1800	7–4½x....	Y	Spl 7741	4	Tim SD466	2F	H	8.15–11.66	Own 82F	BW4IA	.....	.....	.....	FX	160	10x3½x⅄	C
	Kenworth																														
55	.....(D).....522	.....	187	245	43000	12900	10 00/20	11.00/22	Cum HB6	6–4⅞x6	672	17	500	150–1800	7–4½x16½	Y	BL 7841	4	Tim U200P4*				Tim 36000TW	Ws4IA	1135	.....	.....	.....	.....		9½x3¼x⅄	
56	.....(D)523.4R	.....	193	241	41000	14600	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17	500	150–1800	7–4½x16½	Y	BL 7841	4	Ti SW3012PA	WF	R	** –6.16	Tim 36000	Ws4rIA	924	1248	a	TD	102	9¼x3¼x⅄	C
57	.....(D)524.4R	.....	193	241	54000	15100	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17	500	150–1800	7–4½x16½	Y	BL 7841	4	Tim SW452	WF	R	6.0 –7.6	Tim 36000	Ws4rIA	819	1192	a	TD	102	9¼x3¼x⅄	C
58	.....528.4R	.....	186	234	40000	12500	10.00/20	10.00/22	Bud LO525	6–4½x5½	525	5.5	385	150–2200	7–3x11½	Y	Fu 5A620	5	Ti SW3012PA	WF	R	** –6.16	Tim 35100	Ws4rIA	924	1248	a	TD	102	9¼x3¼x⅄	C
59	.....(D)548.4R	.....	193	241	54000	17000	11.00/22	12.00/24	Cum HB6	6–4⅞x6	672	17	500	150–2200	7–4½x16½	Y	BL 7841	4	Tim SD462	DR	R	** –8.15	Tim 36000	Ws4rIA	819	1192	a	TD	109	9½x3¼x⅄	dbC
60	.....(D)552.4R	.....	255	255	54000	20700	13.00/24	13.00/24	Cum HB6	6–4⅞x6	672	17	500	150–1800	7–4½x16½	Y	BL 7841	4	Tim SD462W	WF	R	** –8.15	Tim F3200W	Ws4rIA	1109	1192	a	TD	168	9¼x3¼x⅄	dbC
61	(D).....825	.....	193	241	42000	14900	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17	500	150–1800	7–4½x16½	Y	BL7841	4	TGSW458P	WF		6.0–7.6	Tim 36000	Ws4rIA	1016	....	a	TD	102	9¼x3¼x⅄	C
62	829	.....	186	234	42000	14650	10.00/20	11.00/22	Bud LO525	6–4½x5½	525	5.5	385	150–2200	7–3x11½	Y	Fw5A620	5	TSD3010P	DR	R	–8.27	Tim 36000	Ws4rIA	924	....	a	TD	104	9¼x3¼x⅄	....

(Turn to Page 90, please)

▲ Includes Cab. ▼ Auxiliary transmission Spicer 703F with 3 forward speeds. * Complete vehicle. † Timken T76—2 speed transfer case.
• Three speed transmission—2 speed transfer case. * Timken T13126PA Trailing Axle.

EXIDE BATTERIES ... for extra power, peak performance and low cost per mile of operation

You gain in many ways when your trucks are equipped with Exide Batteries. Operation and maintenance costs are reduced to a minimum. Replacements are less frequent. And you can count on added months of dependable service. For into each Exide Battery goes 60 years of battery building experience.

Thousands of fleet owners ... with both Diesel and gasoline engine powered trucks ... have learned that they can count on their Exide Batteries for dependable performance, long life and low, over-all battery costs.

IMPORTANT NEW FEATURES

- Heavy, oversize plates.
- Greater capacity.
- Self-cleaning, non-spitting vent plugs.
- Double insulation between plates.
- "Bull's Eye" electrolyte leveling device.
- Larger, heavier inter-cell connectors.
- Hard rubber container.
- Positive cover seals.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32

Exide Batteries of Canada, Limited, Toronto

(Continued from Page 88)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Approved Tire Sizes (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number, Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Sp'ds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operat'n	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME Side Rail Dimensions	Type
	Marmon-Herr.																													
1	(C).....CM5-6	2790	156	....	22500	▲6673	7.50/20D	7.50/20	Ford	8-3⅛x3¼	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Timken	S	H	** –6.67	Own M5	M	503	....	s	F	82⅛	7½x3x¼	C
2	(C).....CM6-6	2822	180	....	22500	▲6710	7.50/20D	7.50/20	Ford	8-3⅛x3¼	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Timken	S	H	** –6.67	Own M5	M	503	....	s	F	106⅛	7½x3x¼	C
3	.....MH440-6		182	....	34000	▲10600	9.00/20	10.00/20	Her WXLC3	6–4¼x4¼	404	5.4	239	118–2800	7–2⅝x13¼	Y	Fu 5A430	5	Tim SFD154	2B	H	** –8.43	Tim F2000W	Ws..A	876	....	C	F	96	9¼x3x¼	T
4	.....MH-555-6		182	....	42000	▲14900	11.00/20	11.00/20	Her RXC	6–4⅝x5¼	529	6.3	390	131–2200	7–3x13¼	Y	Fu 5A620	5	Tim SD3000	2B	H	** –8.15	Tim F3200W	Ws..A	1092	1608	...	F	93	10⅛x3x⅛	T
	Oshkosh																													
5	.....W703-6X6		Opt	Opt	47000	16950	11.00/20D	12.00/20	Her RXLD	6–4¾x5¼	558	5.4	430	150–2200	7–3½x13¼	Y	Fu 5A650	12	Tim SD454W	2F	H	** –6.31	Own-Tim	L6IH	1080	1625	G	TX	Opt	10¼–3¼–⅝	B
6	(D)...W1600BD		245	Opt	60000	22770	11.00/24D	12.00/24	Bu 6DC844	6–5¼x6½	844	...	600	180–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SD462	2F	H	** –6.14	Own-Tim	LT6IA	1080	1625	G	TX	160	12⅜–3¾–⅝	B
7	(D)‡W1600BDH		267	Opt	60000	24300▲	11.00/24D	12.00/24	Bu 6DC844	6–5¼x6½	844	...	600	180–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SD462	2F	H	**–9.82	Own-Tim	LT6IA	1080	1625	G	TX	174	12⅜–3¾–⅝	B
8	(D)‡W1602BDH		272	Opt	95000	29300	14.00/24D	14.00/24	Bu 6DC844	6–5¼x6½	844	...	600	180–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SD472	2F	H	**–13.9	Own-Tim	LT6IA	....	2217	G	TX	177	12⅜–3¾–⅝	B
9	.....W1600BG		245	Opt	60000	22770	11.00/24D	12.00/24	Bu MO893	6–5⅝x6	893	...	625	200–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SD462	2F	H	**–9.82	Own-Tim	LT6IA	1080	1625	G	TX	160	12⅜–3¾–⅝	B
10	(D).....W1600CD		259	Opt	60000	23400▲	11.00/24D	12.00/24	Cum 6HBI	6–4¼x6	672	...	500	150–1800	7–4½x16	Y	Fu 4BI86	12	Tim SD462	2F	H	**–6.14	Own-Tim	LT6IA	1080	1625	G	TX	174	12⅜–3¾–⅝	B
11	(D)...W1600CDS		259	Opt	60000	23700▲	11.00/24D	12.00/24	Cum 6HBIS	6–4¼x6	672	...	635	200–1800	7–4½x16	Y	Fu 4BI86	12	Tim SD462	2F	H	**–9.82	Own-Tim	LT6IA	1080	1625	G	TX	174	12⅜–3¾–⅝	B
12	(D)..‡W1600CDH		265	Opt	60000	24000▲	11.00/24D	12.00/24	Cum 6HBI	6–4¼x6	672	...	500	150–1800	7–4½x16	Y	Fu 4BI86	12	Tim SD462	2F	H	**–9.82	Own-Tim	LT6IA	1080	1625	G	TX	172	12⅜–3¾–⅝	B
13	(D)..‡W1600CDSH		267	Opt	60000	24300▲	11.00/24D	12.00/24	Cum 6HBIS	6–4¼x6	672	...	635	200–1800	7–4½x16	Y	Fu 4BI86	12	Tim SD462	2F	H	**–6.14	Own-Tim	LT6IA	1080	1625	G	TX	174	12⅜–3¾–⅝	B
14	Peterbilt(D)344DT		189	Opt	43000	16250	10.00/20D	11.00/22	Cum HB600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 7741	12	Tim SW3012W	WF	A	6.00– 8.5	T 36000W	Ws6IA	1212	1734	a	FD	106½	10¼x3¼x⅛	TL
15	(D).....345DT		187	Opt	54000	17300	10.00/20D	11.00/22	Cum HB600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 7741	12	Tim SW456W	WF	A	6.00–10.2	T 36000W	Ws6IA	1450	1626	a	FD	106½	10¼x3¼x⅛	TL
16	(D).....354DT		187	Opt	56000	17450	10.00/20D	11.00/22	Cum HB600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 7741	12	Tim SW456W	WF	A	6.00–10.2	T 27454W	Ws6IA	1450	1626	a	FD	106½	10¼x3¼x⅛	TL
17	(D).....355DT		187	Opt	56000	17900	10.00/20D	11.00/22	Cum HB600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 7741	12	Tim SD462W	2F	A	** –8.15	T 27454W	Ws6IA	1000	1626	a	FD	106½	10¼x3¼x⅛	TL
18	Reo.....C-256		169	200	40000	13100▲	10.00/20	10.00/20	Con T6427	6–4⅛x4⅞	427	6.2	336	153–2800	7–2⅞x13.5	Y	Cla 270V&■	15	Tim SD3010	SF2	T	–7.5	Tim 35000	Ws4IA	1020	1470	var	TD	104⅛	9½x3⅛x⅛	TfP
19	316		186	▼248	54000	15550▲	10.00/20	10.00/20	Con R6602	6–4⅛x5½	602	5.9	464	200–2600	7–3¼x14.5	Y	Spi 6252&▼	15	Tim SD454	SF2	T	6.8–8.15	Tim 36000	Ws4IA	1082	1570	var	TD	108	10¼x3¼x⅝	TfP
20	Sterling...HBS130		164	183	32000	11000	8.25/20	10.00/20	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7–2½x12½	Y	Fu 5A43	5	T-SBD1555DPH	SF	L	6.80–13.14	T-35011H	T6IHV	664	1134	A	TX	83	9x3¼x¼	A
21	.....HBS140		164	183	36000	11800	9.00/20	10.00/20	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7–2½x12½	Y	Fu 5A43	5	T-SD3010PA	2F	L	6.84–10.22	T-35011TW	Ws6IA	1074	1554	A	TX	83	9x3¼x¼	A
22	.....HWS160		164	183	42000	12800	10.00/20	11.00/22	Wau 6SRKR	6–4⅝x5½	517	5.5	368	125–2250	7–3x13¼	Y	Fu 5A62	5	T-SW3010PA	WF	L	5.40–8.50	T-36000TW	Ws6IA	1082	1574	A	TX	83	9x3¼x¼	A
23	.....HWS235		182	193	52000	15700	11.00/20	11.00/24	Wau 145GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86	4	T-SW3 56P	WF	L	5.67–8.20	T-27454W	Ws6IA	1308	1892	A	TX	92	9¼x3¾x⅜	A
24	(D)...HWS160H		182	193	42000	14250	10.00/20	11.00/22	Cum HB600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86	4	T-SW3012PA	WF	L	4.71–6.17	T-36000TW	Ws6IA	1082	1574	A	TX	92	9x3¼x¼	A
25	(D)...HWS235H		182	193	52000	16000	11.00/20	11.00/24	Cum HB600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86	4	T-SW456P	WF	L	5.66–8.20	T-27454W	Ws6IA	1308	1892	A	TX	92	9¼x3⅝x⅜	A
26	.....HC8195		170	189	48000	15300	10.00/20	11.00/22	Wau 140GK	6–4½x5½	525	6.0	426	142–2200	7–3¼x13¾	Y	Fu5A62-3A92	15	Own 195W	CD	R	6.04–7.31	T-36000TW	Ws6IA	1082	1622	A	TX	83	9¼x3¾x⅜	A
27	.....HC8265		182	193	60000	17750	11.00/20	12.00/24	Wau 145GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86♦	12	Own 265W	CD	R	9.21–13.16	T-27454W	Ws6IA	1060	1732	A	JX	92	9¼x3⅝x⅜	A
28	.....HC8297		182	193	70000	20750	12.00/24●	13.00/24△	Wau 1a5GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1872	A	JX	92	9¼x3¾x⅜	AL
29	.....HC8330		174	187	80000	23150	12.00/24	14.00/24△	Wau 145GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1872	A	JX	91	12x3½x⅜	AL
30	(D)...HC8195H		182	193	48000	16000	10.00/20	11.00/22	Cum HB600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Fu4B86-3A92	12	Own 195W	CD	R	6.04–7.31	T-36000TW	Ws6IA	1082	1622	A	TX	92	9¼x3¾x⅜	A
31	(D)...HC8265H		182	193	60000	18100	11.00/20	12.00/24	Cum HBD600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86♦	12	Own 265W	CD	R	9.21–13.16	T-27454W	Ws6IA	1060	1732	A	JX	92	9¼x3⅝x⅜	A
32	(D)...HC8297H		182	193	70000	21050	12.00/24●	13.00/24△	Cum HBD600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1872	A	JX	92	9¼x3¾x⅜	AL
33	(D)...HC8330H		174	187	80000	23450	12.00/24	14.00/24△	Cum HBD600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1872	A	JX	91	12x3½x⅜	AL
	Truckstell																													
34	(C)...F2X26.2F		156	237	26000	▲5900	7.50/20	8.25/20	Ford	8-3⅛x3¼	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Ford	SF	..	** –6.67	Ford	F6IHV	502	836	Co	TX	82½	7½x3x.47	CT‡
35	(C)...F2X27-0.2F		156	237	27000	▲6450	7.50/20	8.25/20	Ford	8-3⅛x3¼	239	6.4	180	100–3800	3–2½x4.71	N	Ford	8	Eat 1350	SFd	..	5.83–8.11	Ford	F6IHV	502	836	Co	TX	82½	7½x3x.47	CT‡
36	(C)...F2X34.2F		156	237	34000	▲8335	7.50/20	9.00/20	Ford	8-3⅛x3¼	239	6.4	180	100–3800	3–2½x4.71	N	F and BL	12	Cla R1250	SF	..	5.67–6.83	Ford	F6IHV	635	1033	Co	TX	82½	7½x3x.47	CT‡
37	(C)...F2X34–0		135	224	34000	▲8585	7.50/20	9.00/20	Ford	8-3⅛x3¼	239	6.4	180	100–3800	3–2½x4.71	N	Ford and BL	12	Cla R1250	SF	..	5.67–6.83	Ford	F6IHV	635	1033	Co	TX	82½	7½x3x.47	CT‡
38	(C)...F4X26.4R		144	210	26000	▲6300	7.50/20	8.25/20	Ford	8-3⅛x3¼	239	6.4	180	100–3800	3–2½x4.71	N	Ford	8	Ford	SF	..	6.07–10.5	Ford	F6IHV	502	836	Co	TX	63⅛	7½x3x.47	CT‡
39	(C)...F4X27–0		117	180	27000	▲6300	7.50/20	8.25/20	Ford	8-3⅛x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	8	Ford	SF	..	6.07–10.5	Ford	F6IHV	502	836	Co	TX	63⅛	7½x3x.47	CT‡
40	(C)...F4X29.4R		144	210	29000	▲7000	7.50/20	8.25/20	Ford	8-3⅛x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	16	Eat 1350	SFd	..	7.47–12 9	Ford	F6IHV	502	836	Co	TX	63⅛	7½x3x.47	CT‡
41	(C)...F4X30–0		117	180	30000	▲7200	7.50/20	8.25/20	Ford	8-3⅛x3¾	239	6.4	180	100–3800	3–2½x4.71	N	Ford	16	Eat 1350	SFd	..	7.47–12.9	Ford	F6IHV	502	836	Co	TX	63⅛	7½x3x..7	CT‡
42	(C)...C2X26.2F		157	234	26000	▲5800	7.50/20	8.25/20	Chevrolet	6–3⅞x3½	235	6.	192	93–3100	4–2¼x5⅛	N	Chevrolet	4	Chevrolet	SF	..	** –6.17	Chevrolet	C6IHV	546	780	Co	2I	82¼	7½x8x.47	CT‡
43	(C)...C2X28.2F		157	234	28000	▲6500	7.50/20	8.25/20	Chevrolet	6–3⅞x3½	235	6.	192	93–3100	4–2¼x5⅛	N	Chevrolet	8	Tim	SFd	..	5.64–8.22	Chevrolet	C6IHV	546	780	Co	2I	82¼	7½x3x.47	CT‡
44	(C)...C2X34-0		141	224	34000	▲8590	7.50/20	9.00/20	Chevrolet	6–3⅞x3½	235	6.	192	93–3100	3–2¾x5⅛	N	C and BL	8	Cla R1250	SFd	..	5.67–6.83	Chevrolet	C6IHV	659	1033	Co	TX	82¼	9⅝x3x.50	CT‡
45	(C)...C2X34.2F		157	234	34000	▲8420	7.50/20	9.00/20	Chevrolet	6–3⅞x3½	235	6.	192	93–3100	4–2¾x5⅛	N	C and BL	12	Cla R1250	SF	..	5.67–6.83	Chevrolet	C6IHV	659	1033	Co	TX	82¼	9⅝x3x.50	CT‡
46	(C)...C4X26.4R		145	212	26000	▲6120	7.50/20	7.50/20	Chevrolet	6–3⅞x3½	235	6.	192	93–3100	4–2¾x5⅛	N	Chevrolet	8	Chevrolet	SF	..	6.41–11.1	Chevrolet	C6IHV	546	780	Co	2I	63⅜	7½x3x.47	CT‡
47	(C)...C4X27-0		117	184	27000	▲6215	7.50/20	7.50/20	Chevrolet	6–3⅞x3½	235	6.	192	93–3100	4–2¾x5⅛	N	Chevrolet	8	Chevrolet	SF	..	6.41–11.1	Chevrolet	C6IHV	546	780	Co	2I	63⅜	7½x3x.47	CT‡
48	(C)...C4X29.4R		145	212	29000	▲6880	7.50/20	8.25/20	Chevrolet	6–3⅞x3½	235	6.	192	93–3100	4–2¾x5⅛	N	Chevrolet	16	Eat 1350	SFd	..	7.47–12.9	Chevrolet	C6IHV	512	836	Co	TD	63	7½x3x.47	CT‡
49	.....C4X30-0		117	184	30000	▲7290	7.50/20	8.25/20	Chevrolet	6–3⅞x3½	235	6.	192	93–3100	4–2¾x5⅛	N	Chevrolet	16	Eat 1350	SFd	..	7.47–12.9	Chevrolet	C6IHV	512	836	Co	TD	63	7½x3x.47	CT‡

▲ Includes cab. ● Rear only; Front 11.00/24. ♦ Auxiliary transmission, Spicer 8031. △ Rear only; Front 12.00/24. ‡—Hydraulic Coupling. &—Chassis Weights on Duals Front, Center and Rear. ■ 6231 Spicer Auxiliary Transmission
▼ Special W.Bs. available on request. 8031F-G Spicer Auxiliary Transmission Available.

INTRODUCING

. . . RALPH GROVES, manager of the Columbus, Ohio, branch of The Autocar Co. Before joining Autocar he was executive secretary of the Ohio State Highway Dept.

. . . RAY HARRIS, manager of Highway Trailer Co.'s Detroit, Branch.

. . . H. F. BARNHILL, general service manager of Highway Trailer Co. He has spent the last seven years in service work with trailer companies.

. . . J. M. MORROW, vice-president in charge of sales for The Dayton Steel Foundry, Dayton, Ohio.

Billboard on Wheels Brings 6000 Customers

Simple, inexpensive lettering of name and telephone number on this delivery truck produced $8000 in new business in the first six months for Pierce

"A billboard on wheels is the best billboard in the world, according to Prescott H. Pierce of Providence, R. I. And after four years of advertising his fire extinguisher business by way of a sign on his truck, he has 6000 customers to prove it.

Pierce's business venture began in 1920, when a canvassing salesman sold him a fire extinguisher and then never showed up again to service it. He realized the need for such a service and accordingly fixed up a compact workshop in the trunk of his car so that he could service fire extinguishers out on the job. In 1943 he bought a "shop on wheels" in the form of an old milk delivery truck, lettered the body in gold to advertise his service, and set out to new horizons in selling and servicing more fire extinguishers.

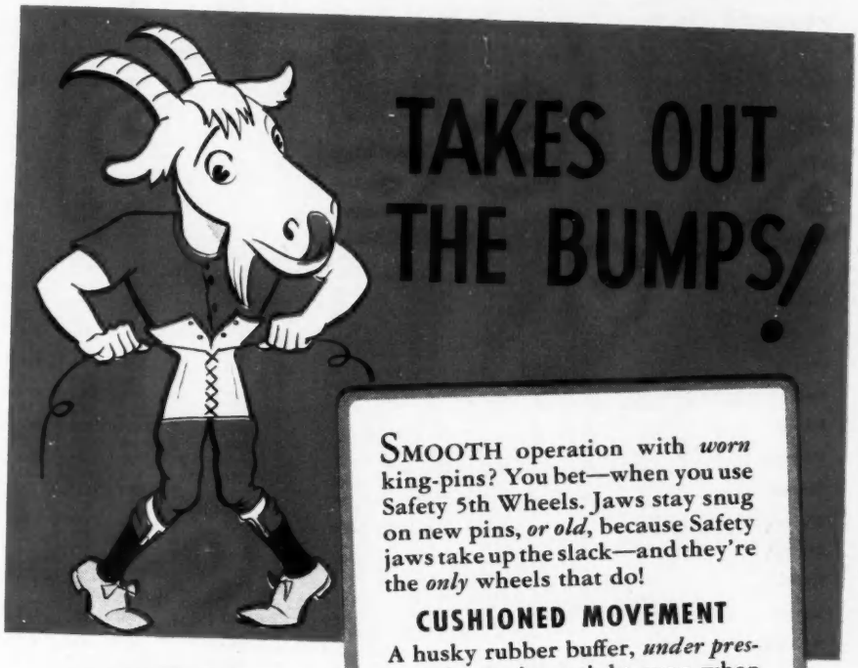
In the first six months the truck produced $8000 in new business. His records show that more than half of his 6000 customers and more than half of his dollar volume of sales and servicing are the result of prospects "seeing his truck" and telephoning him. Pierce's experience provides a yardstick showing the power of advertising to reduce the cost of getting new business. The few dollars spent in the attractive lettering on his truck paid for itself in the first month and has been piling up dividends ever since.

There is nothing unusual about Pierce's truck. It is man-high and provides adequate space for advertising. Simple lettering is done in gold, with no unusual arrangement. There is nothing unusual about Pierce. He found his acre of diamonds right in his own town and out of his experience. He created an opportunity, had confidence in himself and in the power of advertising—on a second-hand truck.

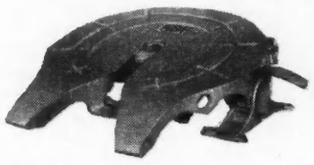
Quiz Answers

CCJ Quiz on P. 68

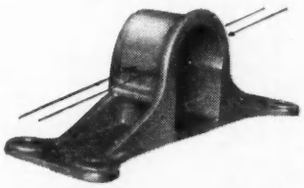
1. Paul G. Hoffman, President of the Studebaker Corp.
2. Henry Ford II, President of Ford Motor Co.
3. Fowler McCormick, Cnairman of the Board, International Harvester Co.
4. John D. Biggers, President of Libbey-Owens-Ford Glass Co.
5. Henry J. Kaiser, Chairman of the Kaiser-Frazer Corp.
6. John L. Collyer, President of B. F. Goodrich Co.
7. Eugene Holman, President of Standard Oil Co. (New Jersey.)
8. K. T. Keller, President of Chrysler Corp.
9. Harvey S. Firestone, Jr., President of Firestone Tire and Rubber Co.
10. Charles E. Wilson, President of General Motors Corp.



TAKES OUT THE BUMPS!



The new Series 400-C. Dealers and distributors wherever you go.



Sockets on the plate fit well down over the trunnions so that tractor pull is transmitted in a straight line. Plate won't "lift" under power or braking.

SMOOTH operation with *worn* king-pins? You bet—when you use Safety 5th Wheels. Jaws stay snug on new pins, *or old*, because Safety jaws take up the slack—and they're the *only* wheels that do!

CUSHIONED MOVEMENT

A husky rubber buffer, *under pressure*, keeps jaws tight even when pins are worn as much as 3/16" undersize. This cushioned movement prevents backlash and slack. And, since the lock may be easily shimmed without removing wheel, Safety 5th Wheels can always perform *like new*.

SAFETY, ALWAYS

Safety 5th Wheels can't unlock accidentally—the patented lock is *really safe*. They are strong, easy to operate, and remarkably long lasting. Built for utmost economy and *dependability in service* by the nation's leading producer of couplings for railroads. Automotive Division, American Steel Foundries, 400 N. Michigan Ave., Chicago 11, Illinois.

A·S·F Safety 5th WHEEL

Use postage-paid card inserted on page 61 for free information on advertised products

1947 New Truck Registrations by Makes by States*

STATE		Auto-car	Brock-way	Chev-rolet	Dia-mond T	Divco	Dodge	Fed-eral	Ford	FWD	GMC	Inter-na-tional	Mack	Osh-kosh	Reo	Ster-ling	Stude-baker	Ward La France	White	Willys	All Others	Total
Alabama	October			578	8	8	267	6	405		113	200	20		28		54		22	139	8	1856
	10 Mos.	4		4019	74	20	1956	61	3327	1	803	1768	81		223		421	1	150	886	68	13863
Arizona	October			152	6	2	57		80		24	47	2		2		41		6	39	3	459
	10 Mos.	4		966	23	10	516	16	963	4	244	350	11		90	4	260		38	284	39	3822
Arkansas	October			614	5		162	6	337		112	151	9		13		48		2	173	1	1633
	10 Mos.			4057	73		1510	38	3606		709	1343	26		93		461		57	883	25	12881
California	October	24	2	1832	37	46	895	11	1107	13	278	513	27		31	8	331	1	49	282	86	5553
	10 Mos.	315	44	11549	387	258	7405	151	10815	151	3453	5458	306		473	99	3116	7	504	1838	813	47142
Colorado	October	3		191	18	7	113	6	188	8	71	198	5		11		36	7	8	88	8	968
	10 Mos.	25		1920	107	45	1000	37	2101	71	462	1251	44		95		331	9	66	618	59	8241
Connecticut	October	24	8	281	11	10	109	20	136	6	50	117	17		12		36		10	39	7	893
	10 Mos.	170	125	1557	107	73	978	143	1154	26	394	1169	225		111	5	387		145	347	76	7192
Delaware	October	1	2	84	2	6	45		45		21	28	1				12	1	5	5		258
	10 Mos.	16	21	550	17	20	416	1	590	4	141	332	15		19		104	2	25	82	17	2372
Dist. of Columbia	October	7	1	89		7	61	4	70		25	35	4		2		21		15	6	3	350
	10 Mos.	14	19	592	38	97	443	26	661		241	343	29		45		120		46	45	17	2776
Florida	October	4		665	26	5	230	7	338	1	69	157	17		14		62	1	18	28	31	1673
	10 Mos.	35	1	4569	156	34	2078	88	3846	35	748	1626	204		195		691	4	158	774	157	15380
Georgia	October			807	19	2	261	7	381		110	154	14		22		77		9	95	9	1967
	10 Mos.	7	2	5181	167	10	2516	59	4965	1	865	1936	148		224	1	664		204	880	68	17898
Idaho	October	1		153	2	2	51	4	101		23	56	2		7		25		2	30	6	465
	10 Mos.	9		1261	57	16	593	48	1147	6	281	679	15	1	68	2	327		18	379	53	4960
Illinois	October	18		1207	91	43	494	34	766	5	198	669	49		58	5	189		72	348	35	178
	10 Mos.	225	50	10098	973	350	5644	233	8789	13	2089	5792	355		697	17	1799	3	590	1814	356	4281
Indiana	October	7	11	694	43	16	341	15	428	17	130	419	9		39	1	149		61	100	16	2496
	10 Mos.	33	111	4915	328	137	3243	136	4703	31	1225	3525	138		385	1	1509		379	1101	212	22112
Iowa	October			510	30	8	186	10	293	1	98	381	22		27		81		8	101	7	1763
	10 Mos.	4	2	4143	266	56	2175	59	3934	17	703	2840	146		256		898	2	131	1263	74	16969
Kansas	October	1		339	21		147	21	294		88	231	6		17		74		15	49	9	1312
	10 Mos.	10	1	4587	225	22	1569	134	3687	1	703	2023	43		180		815		147	504	64	14715
Kentucky	October	2		568	24	1	222	14	380		106	180	19		40		64		14	82	9	1725
	10 Mos.	16		3888	143	19	1934	102	3279	1	747	1900	87		210		553		121	1409	98	14506
Louisiana	October	1		415	21	3	174	7	291		82	198	13		19		64		24	30	4	1346
	10 Mos.	13		3074	151	16	1510	41	2828	1	521	1459	101		131		583		140	632	23	11224
Maine	October		3	207	1	5	86	12	142		34	94	10		12		36		8	37	1	688
	10 Mos.	22	31	1536	19	21	934	68	1741	7	372	907	104	12	122	12	334	3	74	324	50	6893
Maryland	October	18	13	396	7	22	212	9	204		51	127	11		22		58		11	32	7	1200
	10 Mos.	88	91	2720	68	135	1719	106	2283		539	1328	158		216		483	21	138	401	71	10565
Massachusetts	October	45	39	884	46	68	539	15	724		168	502	69	1	42	25	200	1	38	83	37	3526
	10 Mos.	250	227	3026	225	294	2389	88	3557	5	913	2062	379	2	244	113	726	32	323	488	136	15479
Michigan	October	2	1	793	31	38	441	42	551	1	121	197	15		56		110	1	28	187	11	2626
	10 Mos.	70	50	6158	299	357	4872	427	6898	2	1505	2670	127		701	1	1196	17	261	1525	272	27408
Minnesota	October	5		320	19	7	185	19	384	2	64	286	17		15		104	3	25	50	6	1491
	10 Mos.	49	2	3567	177	71	2151	186	3869	31	706	2306	119	7	131		790	15	270	581	88	15116
Mississippi	October			483	19		200	3	337		113	178	23		13		44		7	68	3	1491
	10 Mos.	2		3733	84	2	1496	28	3210	1	660	1233	76		101		444		85	762	23	11940
Missouri	October	1	1	921	28		270	10	570		143	330	18		24		73	1	25	171	16	2602
	10 Mos.	22	9	6573	263	97	2990	117	5724	3	1228	3100	119		214		930	4	278	1339	106	23114
Montana	October	1		236	6		81	10	122	2	40	137			10		52		9	114	3	823
	10 Mos.	5		1718	75	3	975	32	1381	18	310	921	5	1	71	2	387		55	913	47	6819
Nebraska	October		1	204	27	10	120	9	206		69	254	26		16		49		14	95	4	1104
	10 Mos.	5	1	2322	212	17	1270	64	2246	27	484	1669	129	3	123		545		192	787	34	10130
Nevada	October			16	2		11		7		4	9					3		1	2	2	57
	10 Mos.	8		242	21	2	199	2	262	7	70	172	2	1	15	2	69		9	60	21	1164
New Hampshire	October		1	104	3	1	60	1	52		13	54	13		5	2	13		3	15	6	348
	10 Mos.	22	9	738	26	12	517	16	695		156	422	115		74	16	142		47	194	34	3235
New Jersey	October	23	58	630	32	62	351	19	479		124	307	76	1	20	4	103	3	53	147	30	2522
	10 Mos.	287	433	3877	234	298	2427	156	3433	12	1177	2228	618	2	203	8	759	39	350	738	189	17488
New Mexico	October			184	3		78	2	98		42	64	4		5		21		8	6	2	517
	10 Mos.			1252	54		606	27	835	5	290	471	35		38		201	2	52	152	14	4034
New York	October	95	135	1373	126	78	1077	40	972	11	391	732	223	5	86	7	247	11	129	221	33	323
	10 Mos.	841	1315	9378	881	426	8183	437	9009	115	2937	6066	1865	50	938	63	1937	158	1208	1929	506	5992
North Carolina	October	4	3	999	19	6	266	21	467	1	56	201	50		23		78	1	27	149	7	2378
	10 Mos.	34	14	6057	121	32	2698	143	4936	11	574	1805	323		356		925	3	271	1312	110	19725
North Dakota	October			125	16	1	71	13	191	2	27	164	9	1	1		45		2	82	1	751
	10 Mos.	4		1021	66	6	697	30	1350	9	229	856	33	3	33		348		21	385	11	5100
Ohio	October	12	6	1338	52	36	639	41	795	2	282	545	77		73		185		134	137	31	4385
	10 Mos.	265	64	8721	401	339	6132	358	8393	27	2174	5180	593	1	697	1	1684	19	1107	3210	377	38843
Oklahoma	October			537	8	3	171	5	357	1	83	295	10		22		59	1	12	121	5	1690
	10 Mos.	3		3880	65	31	2201	49	3627	6	671	2282	76		166		654	4	159	820	44	14718
Oregon	October	4		377	12	7	181	13	182	5	39	124	15		14	3	57		16	88	22	1157
	10 Mos.	41	1	2524	211	40	1682	119	1967	25	614	1223	96		129	12	654		148	774	140	10401
Pennsylvania	October	44	111	1311	81	25	876	43	1008		338	746	158		105	2	299	4	149	302	35	5639
	10 Mos.	518	800	8867	634	141	7338	347	8781	44	2424	6306	938	77	813	73	2188	59	1040	1966	331	43685
Rhode Island	October	8	1	136	10	10	58		59		32	68	5		3		15		10	15	3	433
	10 Mos.	85	7	755	42	81	415	10	594	2	180	363	41		27	7	132	3	53	100	26	2923
South Carolina	October	3		324	2		107	2	244	10	36	76	21		12		29		9	53	4	932
	10 Mos.	6		2631	42		1398	27	2488	24	376	752	102		179		371		111	573	75	9155
South Dakota	October			46	8		43	2	84		18	103	3		3		27		8	45	2	392
	10 Mos.	8		779	96		757	38	943	9	213	740	28		72		219		34	548	12	4496
Tennessee	October			792	15	2	257	11	384		148	301	12		28		66		24	156	9	2205
	10 Mos.	12	17	6040	133	28	2889	187	4525	24	1387	2563	202		274	3	768	2	265	1066	142	20507
Texas	October		2	1983	39	8	690	28	1296		326	685	34		49		205	3	74	354	16	5792
	10 Mos.	1	16	12353	309	14	6847	141	11278	6	2260	5824	328	1	511		2012	5	679	2710	178	45573
Utah	October			128	8	2	51	6	72	2	22	81	3		2		23		9	24	2	435
	10 Mos.			980	37	27	469	50	928	16	253	582	28	1	17	1	229		38	213	43	3912
Vermont	October		5	109	4	2	56	4	73		16	60	9	1	16		19	1	4	68	6	463
	10 Mos.	9	29	641	29	11	487	26	760	5	199	455	72	5	112	6	126	10	32	394	31	3439
Virginia	October	10	3	663	20	7	282	17	547	3	67	199	21		11		96		22	122	27	2117
	10 Mos.	97	55	4934	169	79	2584	127	5440	12	786	1971	123		240	1	741		238	945	156	18698
Washington	October			359	18	10	122	2	282		45	186	11		11	2	67		21	46	18	1200
	10 Mos.	23	1	2643	168	71	1676	23	2996	17	687	1506	130		172	14	746		87	569	158	11687
West Virginia	October	8	5	179	6	5	129	13	170	2	43	93	16		7		32		3	62	6	779
	10 Mos.	27	63	1710	73	33	1317	96	1807	51	423	876	69		124		350	10	91	696	68	7884
Wisconsin	October	2		517	36	30	213	13	372	6	102	374	19	2	30	5	88		44	77	11	1941
	10 Mos.	45		4409	271	163	2124	98	3573	109	889	2603	105	32	304	34	680	2	329	752	106	16628
Wyoming	October			117	12	1	61	1	91	1	19	84	1		2		22	2	8	71	4	497
	10 Mos.	1		641	57	4	355	9	658	4	100	406	16		14		128	5	48	423	94	2885
Totals	October—1947	378	412	25970	1080	612	11801	598	17142	102	4672	11390	1215	11	1080	64	3889	42	1275	4822	612	87167
	October—1946	444	313	23272	580	392	7962	367	17732	48	3356	9258	108		1227	48	2874		1125	5201	421	74708
Totals	10 Mos.—1947	3751	3611	183352	8854	4118	108260	4985	170582	998	40115	95622	9128	199	10926	498	34935	441	11010	40488	5832	737705
	10 Mos.—1946	3645	3014	129337	3930	3052	79289	3662	102800	455	17792	64386	4382		8103	436	19970		7779	34915	4870	491817

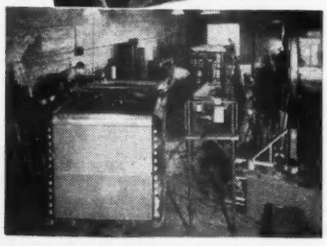
* Data from R. L. Polk & Co.

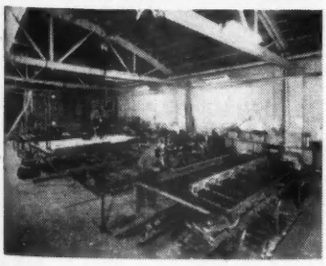
—and in Chicago, Ill.

your LS Jim* is

D. K. SCOTT

of General Body Sales Corp.





Pictured above, are finished products of the General Body Sales Corp., Chicago, Illinois. Lower photographs give a suggestion of the ample and up-to-date facilities of this modern truck body plant.

WHEREVER you do business, there is a neighbor of yours who has a new, unique plan for supplying your truck body requirements. He is an important local manufacturer—he can personally understand your needs and build bodies to meet your specifications. At the same time, he is the only builder who can supply Lindsay Structure Bodies, and give you all the plus advantages of LS mass production.

There are 207 of these men in all parts of the country so that wherever you go there is an "LS Jim" to supply your Lindsay Bodies to the same specifications—or to give you FAST, AUTHORIZED LS SERVICE.

In Chicago, Illinois, a typical "LS Jim" is D. K. Scott of General Body Sales Corp.He has been building bodies for years for the leading fleets in the area, and a modern plant equipped for efficient line production backs his efforts. He has the "know-how" and the means to give you fast, understanding service on all your truck body requirements.

We urge you to call Scott at General, or any of the other 206 "LS Jims"—today—and get acquainted with LS Service. Write for information.

The Lindsay Corporation, 1724 25th Ave., Melrose Park, Ill. Sales Offices: Chicago, New York, San Francisco.

LINDSAY STRUCTURE

LS

U. S. Patents 2017629, 2263510, 2263511
U. S. and Foreign Patents and Patents Pending

Distributors and Builders in All Parts of the Country

CCJ NEWSCAST

PRIVATE OPERATORS TO DISCUSS TIMELY SUBJECTS

A program of exceptional interest to all private motor carriers has been set up for the Ninth Annual Meeting of The National Council of Private Motor Truck Owners, Inc., to be held at the Statler Hotel, Washington, D. C. on Jan. 29. As in the past it will be a one-day affair featuring short talks on timely subjects followed by discussions from the floor.

The morning session will include discussions of legislation by William H. Ott, chairman of the Council's legislative committee; safety regulations, by A. M. Green, Jr., chairman of the committee on ICC affairs; and wage-hour problems, particularly as they affect the driver-salesman, by William A. Quinlan, special counsel.

The afternoon session will feature a discussion of current threats to private carriage with emphasis on monopolistic moves by common carriers. This part will be handled by Prof. John S. Worley, of the University of Michigan, supported by a panel of well-qualified private carriers.

In a panel discussion, Russell Singer of the American Automobile Association, will discuss the general subject, "What's Wrong With Trucks," giving fleetmen a chance to discuss latest unfavorable reaction to trucks by the general motoring public.

Finally, Hal Hale, of the American Association of State Highway Officials, will discuss highway matters with special emphasis on AASHO's stand on sizes and weights.

ASIS BREAKS ALL RECORDS

The Automotive Service Industries Show which ended its one-week stand on Chicago's Navy Pier, Dec. 13, broke all previous records for number of exhibitors, exhibition space and attendance. The vital statistics, according to Show Manager A. B. Coffman's unofficial estimates—483 exhibitors utilizing over 162,000 sq. ft. of floor space and attendance over the 25,000 mark.

SCOTT SUCCEEDS FENN

L. M. Scott has been appointed acting manager of the American Bantam Car Co. to succeed Francis H. Fenn, president and general manager, who died Nov. 29 at Pittsburgh. Scott also was elected treasurer of the truck-trailer manufacturing firm.

Mr. Scott has been associated with the company since May, 1946. He had been assistant to the vice-president in charge of finance until appointed comptroller in November, 1946.

Before joining Bantam, Mr. Scott was with several Pittsburgh firms. He was treasurer of Federal Laboratories, Inc., chief auditor of Bankers Lithographing Co., and chief accountant of Blaw Knox Division of Blaw Knox Co.

DATES & DOINGS

JAN. 29—Ninth Annual Meeting of the National Council of Private Motor Truck Owners, Inc., Hotel Statler, Washington, D.C.
MAR. 30—APR. 1—National Transportation Meeting, Society of Automotive Engineers, Bellevue-Stratford Hotel, Philadelphia, Pa.
APRIL 13-16—18th Annual Safety Convention of the Greater New York Safety Council, in the Hotel Pennsylvania, New York City.
JULY 16-24—Road Show, American Road Builders' Assn., Soldier Field, Chicago, Ill.

TRUCK SALES RECORD

Reflecting record-breaking production, the truck industry sold a record-breaking number of new trucks during October. A grand total of 87,167 new trucks were registered in October, according to R. L. Polk & Co., more than 2000 greater than the previous high-sales mark in April, 1947, when 85,148 units were titled. Of the total, 30,183 were in the 5000 lb or less gross weight classification, with the 10,000 to 14,000 lb classification second, numerically, with 19,422 units.

The truck production total of October, according to the Automobile Manufacturers' Association, was 118,365 units.

ICC LEASING PROBE EXPECTED

Persistent reports from Washington at the time this issue went to press indicated that the ICC would soon launch a sweeping investigation into truck leasing practices. The Bureau of Motor Carriers was said to be aiming particularly at leasing of vehicles by for-hire carriers to shippers so that the latter might perform services for which the carrier had no authorization.

Corrugated Fruehauf

Fruehauf has added corrugated models to its all-steel truck body line. Produced by the Fruehauf Carter Division in Memphis, they are available in 10, 12, 14 and 16-ft lengths

COURT UPHOLDS "USE" TAX

In the U. S. Supreme Court's recent decision in the case of Aero Mayflower Transit Co. vs. Board of Railroad Commissioners of the State of Montana the Court again decided that state taxes as applied to an interstate motor carrier do not run afoul of the commerce clause of the Federal Constitution. The case involved the imposition of a flat tax of $10 and a minimum "gross receipts" tax of $15 by the State of Montana on all certificated motor carriers "in consideration of the use of the highways of this state."

SAFETY IS TOP OBJECTIVE

Ed J. Buhner, newly-named president of the American Trucking Associations, Inc., said recently his major objective for the coming year will be to "achieve sharp and substantial improvement" in the highway courtesy and safety performance of the trucking industry. Speaking before the Missouri Bus and Truck Association's annual convention he said he would subordinate every other activity of the national association "to the extent necessary to achieve sharp and substantial improvement of our record on the streets and highways of this nation."

EXEMPTION FOR SALESMEN

Continued exemption of all "driver-salesmen" from provisions of the Fair Labor Standards Act is being advocated by the National Council of Private Motor Truck Owners, Inc., Washington, D. C., in a formal statement just submitted to the Administrator of the Wage and Hour Division, U. S. Department of Labor, prior to a public hearing scheduled by the Division involving contemplated revisions of its regulations covering wage-hour law exemptions accorded various "white-collar" employees, including outside salesmen.

DRIVER OF THE YEAR

Three of the nation's top-ranking figures in the highway safety field will serve as judges to select the truck "Driver of the Year," sponsored by ATA. They are Major General Philip B. Fleming, general chairman of the President's Highway Safety Conference; A. W. Bohlen, executive director of the American Association of Motor Vehicle Administrators, and Arthur C. Butler, managing director of the National Highway Users Conference.

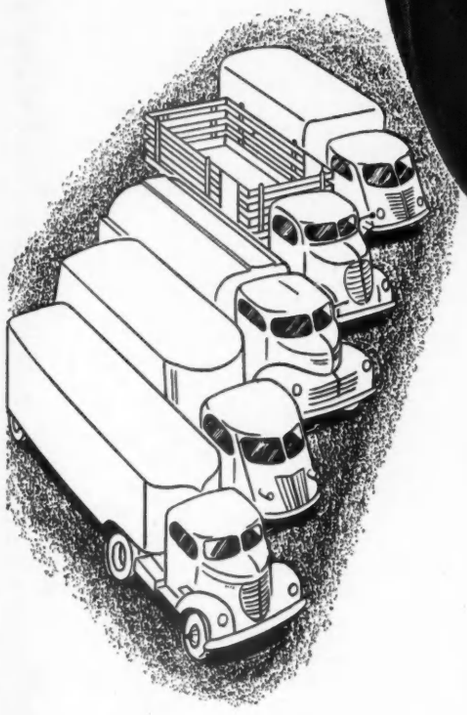
The winner will be selected from among

(TURN TO PAGE 98, PLEASE)

MIDLAND

HY POWER

THE MIDLAND STEEL PRODUCTS CO.
CLEVELAND, O. • DETROIT, MICH.
PATENTS PENDING PAT. 2,219,062 10-22-40



HY-POWER UNITS CAN BE APPLIED TO PRACTICALLY ALL MAKES AND MODELS

DIRECT APPLIED POWER for POSITIVE BRAKING

Midland's HY-POWER Vacuum Brake combines in a single completely enclosed unit these three time-tested parts: Vacuum diaphragm chamber, hydraulic vacuum valve and hydraulic slave cylinder. All moving parts are completely enclosed — protected against all weather and atmospheric conditions. No mud, water, dust or dirt can enter to rust, corrode or unseat internal valves. Scientifically designed and ruggedly constructed for efficient, trustworthy service under all conditions. Ask your Midland distributor about the superiority of HY-POWER, or write to us for complete information.

THE MIDLAND STEEL PRODUCTS CO.
6660 Mt. Elliott Avenue • Detroit 11, Mich.
Export Dept: 38 Pearl St., New York, N. Y.

MIDLAND POWER BRAKES

CCJ NEWSCAST

(CONTINUED FROM PAGE 96)

those truck drivers who have earlier been named "Driver of the Month" in competitions held throughout the country by the State Trucking Associations.

1947 Truck Trailer Production*

Vans:	October	10 Months
Insulated and refrigerated	108	1,682
Furniture	37	938
All other closed top	1,327	18,214
Open top	115	1,481
Total Vans	1,587	20,315
Platforms:		
With cattle and stake racks	293	2,950
With grain bodies	56	1,113
All other	499	6,963
Total Platform	848	11,026
Tanks:		
Petroleum	287	1,788
All other	31	802
Total Tanks	318	2,590
Pole and Logging:		
Single axle	203	3,800
Tandem axle	58	1,380
Total	261	5,180
Low-bed heavy haulers	177	2,156
Off-highway	64	759
Dump trailers	35	586
All other trailers	161	1,239
Total Trailers	3,451	43,851
Chassis for trailers	511	2,882
Total Trailers and Chassis	3,962	46,733

* Data from Industry Division Bureau of the Census.

INDUSTRIAL NOTES

Highway Trailer Co. is using a new promotional campaign employing third dimensional color photography in a manner never before used in the automotive industry. For many weeks technical experts have been at work in an effort to photograph Highway facilities, methods and products in the new three-dimension process.

The Trailmobile Co. has retained the services of The Harold F. Howard Co., management consultants of Detroit. Trailmobile intends not only to improve the appearance of the entire line, but also to make mechanical changes to permit greater payload capacity with lighter trailer weights. The Howard Company will serve as consultants in this and other phases of the company's business.

Trucking, Inc.'s new terminal at 1901 Walworth Ave., Cleveland, is to be ready for use, according to Earl F. Winters, president of the company, about the time this issue is off the press.

Mack Trucks, Inc., has disclosed plans contemplating the expenditure in the next two or three years of an estimated $10,000,000 for new machinery, new tooling for model changes, new buildings or renovation of existing buildings and rearrangement of facilities.

Full production is under way in the new Willard Storage Battery Co. plant at Memphis. Built and equipped at a cost of $1,000,000, the ultra-modern factory has a capacity of 250,000 batteries a year.

(TURN TO PAGE 242, PLEASE)

1947 Domestic Motor Truck Factory Sales by Gross Vehicle Weight*

	5,000 & Less	5,001-10,000	10,001-14,000	14,001-16,000	16,001-19,500	19,501-26,000	Over 26,000	Total
January	25,578	11,103	17,361	15,746	3,259	2,313	2,074	77,434
February	26,051	13,076	19,170	18,150	2,316	2,579	1,934	83,276
March	27,268	16,852	19,358	20,232	3,062	3,254	2,056	92,082
April	24,487	15,978	18,953	14,885	2,582	3,360	2,270	83,515
May	23,532	14,091	17,474	13,028	2,577	2,950	2,044	75,696
June	21,924	10,809	16,303	16,482	2,928	2,837	2,350	73,613
July	22,679	12,868	16,452	19,294	2,305	3,069	1,777	78,444
August	20,217	9,746	13,977	15,592	2,216	2,988	1,668	66,382
September	31,901	16,326	18,012	15,448	2,803	3,359	1,875	89,724
October	36,538	16,368	15,396	16,781	2,312	3,909	2,003	94,307
November	25,470	12,856	11,813	13,913	2,498	2,958	1,653	71,161
11 Months	285,645	150,073	184,269	179,531	30,858	33,556	21,702	885,634

Mighty Logger

Here's the first photo of the new Model 584 Kenworth—a giant even among logging trucks. Measuring 128½ in. to the top of the exhaust stack, it features power steering, 14.00 x 24 tires and a Hall-Scott Series 400 engine

INTRODUCING . . .

. . . JOHN J. PETERSON as Buffalo Branch manager for The Trailmobile Co.

. . . WALTER E. THILL who heads field engineering activities for Federal-Mogul Service, Coldwater, Mich. He will supervise technical publications, service meetings and service engineering studies.

. . . J. C. KLEFISH as service manager of Highway Trailer Co.'s Detroit operation.

. . . R. W. MAXWELL as assistant manager of International Harvester's Buffalo motor truck branch . . . and J. F. ADAMS as manager of the Nashville motor truck branch, succeeding J. P. Lauffer who is now an International dealer in Columbia, Tenn.

. . . C. H. KINNEY who heads American Bantam Car Co.'s new Middle-West region from headquarters in Chicago.

. . . J. M. MOORE as president and WARREN S. BARLOW as vice-president and treasurer of the Markley Corp., Plainville, Conn., manufacturers of recording devices.

. . . CONRAD CONNELL as supervisor of Exide Automotive Replacement Sales Division of The Electric Storage Battery Co. and THOMAS G. TYNAN as assistant manager of the company's Boston branch.

. . . A. A. MANCHESTER, sales manager for the newly formed Automotive Division of Thomas A. Edison, Inc., West Orange, N. J.

. . . CURTIS L. MOODY as factory manager of United States Rubber Co.'s Detroit plant. In addition he will continue as assistant production manager of the tire division.

. . . L. V. WILLIAMS who recently became associated with the sales department of the Wagner Electric Corp. Branch at Atlanta.

. . . H. A. PRATT as parts and service manager of the Davey Compressor Co., Kent, Ohio.

. . . H. O. HOLLAND as director of sales for Automatic Steel Products, Inc., Canton, Ohio.

. . . IVAN X. SARVIS as new assistant general sales manager for Chevrolet Motor Division. He was formerly manager of the division's Southwest Region, with headquarters at Dallas.

ADDITIONAL ITEMS ON P. 90

More than 500 answers to Your TRUCK BODY Problems!

● IN THE FRUEHAUF LINE of all-steel bodies the combinations are practically limitless. Only 10 easy assembly operations are required to "build" the body of your selection. You can assemble it yourself, or any one of the 72 Fruehauf Factory Branches can complete the job for you in a matter of a few hours. Get full particulars about America's greatest Truck-Body value from your nearest Fruehauf Branch, your local Truck Dealer, or write us for free booklet.

Custom-Built Quality Production-Line Priced!

Industry-Famous "AEROVAN" Construction

MAXIMUM STRENGTH— WITH MINIMUM WEIGHT!

Choice of 12—14—16 Ft. Lengths

BODY DIVISION

FRUEHAUF TRAILER CO. • DETROIT 32

72 Factory Service Branches

72 SERVICE BRANCHES . . . Each a Factory in Itself! **FRUEHAUF** ***TRUCK BODIES***

Anti-Detonant Injection

(Continued from Page 48)

into the intake manifold only when the throttle is wide open or nearly wide open. As a result, alcohol, water and tetraethyl lead accompany gasoline into the engine cylinders only when detonation would otherwise take place. At part throttle operation no anti-detonant is used. This control is effected by the action of intake manifold pressure on a diaphragm in the device which determines when anti-detonant injection will occur. (See Fig. 8, below.) Since vehicles operate at full throttle only part of the time, this method of using an anti-knock solution with gasoline is inherently more economical than blending.

The injection of anti-detonant when needed gives an effective increase in the octane number of the gasoline burned. The reason for this increase is the cooling effect of the water in the combustion chamber, the blending effect of the alcohol with the gasoline, and the anti-knock effect of tetraethyl lead.

85% Alcohol is Optimum

CONSIDERABLE testing of various anti-detonant fluids was done both in an engine connected to an electric dynamometer and in cars and trucks on the road. The factors considered in selecting an optimum concentration of alcohol were as follows:

1. **Greatest improvement possible without loss in power from excessive enrichment or displacement of fuel-air charge by water vapor.**
2. **Highest anti-knock effect for the alcohol consumed.**
3. **Highest anti-knock effect per unit volume of solution injected.**
4. **Least tendency for vapor lock in the anti-detonant solution system.**

From the results gathered the solution tentatively selected as an optimum is 85 per cent alcohol and 15 per cent water containing 3 cc of tetraethyl lead per gallon. At least half of the alcohol should be methanol because it gives the best anti-knock response and is also the cheapest. However, it may be necessary to use some isopropanol to extend the alcohol supply and also to raise the boiling point of the solution to avoid vapor lock. Fig. 4 shows the octane number improvement gained with such a solution in different vehicles when tested by acceleration method.

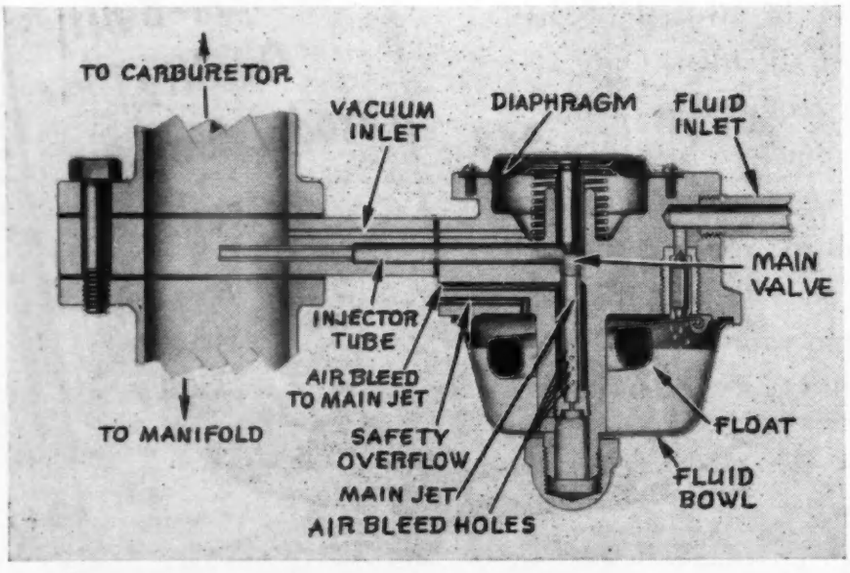


Fig. 8. Cross-section view shows Vita-Meter unit with throttle in wide-open position. Low vacuum has permitted diaphragm to be forced up by spring, opening main valve and permitting flow of injection fluid from bowl, through main jet and injector tube, to manifold. Air bleed holes in jet automatically increase percentage of air as engine speed increases. Fluid enters at right and is controlled by float. As throttle closes, vacuum is built up under diaphragm pulling it down and closing main valve, thus preventing flow of injection fluid. Spring tension and jet may be tailored to requirements of individual engine.

Heavies Need More Fluid

THE average of these results is plotted in Fig. 5. Octane improvement is shown vertically and the amount of fluid injected is shown horizontally. The bottom row of horizontal figures shows the amount of anti-detonant solution injected as a percent of gasoline flow when the throttle is wide open. Because no anti-detonant solution flows at idle or part throttle operation the total use as a percentage of all the gasoline consumed is less. This usage varies with the percent of time that a vehicle is operated at full throttle. Heavily loaded vehicles will use more anti-detonant solution than light ones.

The "Total Use" figures for heavy duty vehicles were determined from service tests of several hundred trucks and buses including an oil company delivery fleet of 188 tank trucks operating in a large metropolitan area. The oil company vehicles used an anti-detonant solution composed of 50 per cent isopropanol and 50 per cent water which gave an improvement of 8 to 12 octane numbers for a maximum rate of injection equal to 20 to 25 per cent of gasoline flow. Four months of operation of this fleet showed the anti-detonant solution used to be equal to 5.5 per cent of the gasoline burned. The shaded area shown in Fig. 5 represents these results. This fleet had been previously operating on 76 ASTM, 83 Research octane number house-brand gasoline. With the Vita-Meters installed it has operated on 60.5 to 73.5 octane number fuel with no deficiency in anti-knock quality. The fleet is continuing to operate satisfactorily with a decrease in maintenance costs.

Power Up 1 to 2%

THE injection at full throttle of an 85 per cent alcohol, 15 per cent water solution increases power. This is due to the cooling effect of the alcohol and water on the fuel-air charge which increases its density. This effect gives an increase of 1 to

(TURN TO PAGE 124, PLEASE)

HOOD TRUCK TIRE

PERFORMANCE TOPS PREWAR

Nylon shock protectors and weftless rayon cord provide an unbeatable combination for longer wear

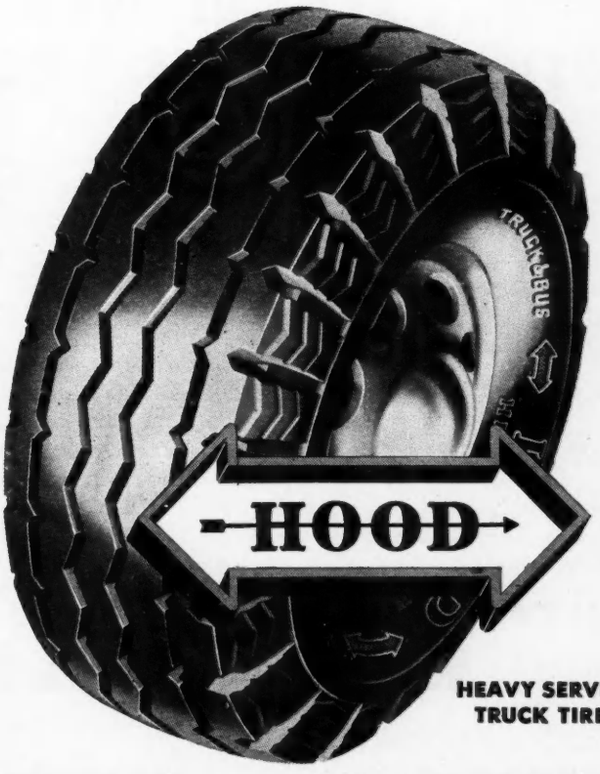
Why nylon shock protectors? Sharp impacts put more tires out of service than tread wear. To overcome this hazard, Hoods are built with two rubber coated nylon breaker strips laid in between the tread and the cord body.

Strong, yet elastic, these nylon "shock protectors" absorb impacts, make tires more bruise-resistant. Average tire mileage is increased. Danger of tread separation is reduced. More tires can be recapped.

Why weftless rayon cord? In a weftless construction there are no cross-woven cords to saw against each other. Instead, cords lay parallel and flat, completely surrounded by rubber. Hood is able to offer you this cooler-running construction through the use of electronic processing which sets the twist in the rayon cord—permits these cords to be built into the tire in a frictionless method.

Together, nylon shock protectors and weftless rayon cord form an unbeatable combination that will give you even better truck tire performance, longer mileage than before the war.

If it's HOOD, it's GOOD



HEAVY SERVICE TRUCK TIRES

HOOD RUBBER COMPANY, A DIVISION OF THE B. F. GOODRICH COMPANY— AKRON, OHIO AND LOS ANGELES, CALIF.

Service Schools

(CONTINUED FROM PAGE 59)

siderable time is spent in fundamentals of spray equipment and spray materials. In this connection operators are taught the basic principles of spraying. the function of various elements of spray guns, pressure regulators, air filters, pressure tanks, exhaust systems. in order that they may intelligently and correctly select equipment as well as use it. The preparation of spray materials for high quality work is covered.

The complete course is covered in five days. Dates of instruction are announced bi-annually through trade papers. Fleetmen writing the factory will be sent the current schedule and complete information.

Welding Schools

Hobart Brothers Co.

The Hobart Trade School offers a complete training course in arc welding to all those who are interested in learning more about the work. Sponsored by The Hobart Brothers Co., Troy, Ohio, the instruction consists of a 16-week course, although the student may be permitted to continue as long as he feels it is necessary. The student may select his own course or any combination of courses best suited to his needs.

Courses include: Arc Welding, Carbon Arc Welding, Alloy Steels and Cast Iron, Helium Arc Welding, Hard Facing, Tool Welding, a 1-week course, Stud Welding, Spot Welding, Metal Spray, Oxy-Acetylene Welding and Cutting.

The school is located in Troy, Ohio. A small tuition fee is charged.

Lincoln Electric Co.

The Lincoln Welding School is a four-week course covering 120 hours of continuous practice in the art of welding. Classes begin each Monday, and employees of fleet operators are welcome to attend. The charge for the basic training course is $15.

Some of the subjects covered in the instruction include use of bare electrodes, as well as the use of shielded electrodes. Students are taught how to run horizontal beads, effect of arc length, current and speed on bead, horizontal, vertical and overhead welding techniques, lap welds, tee welds, fillet welds and penetration cutting.

Special advanced courses are also available. These consist of the Pipe Welding Course, Sheet Metal Welding Course, Alloys Course. Fees for these courses are slightly higher. Complete information may be had by writing to J. R. Morrill, of the Lincoln Electric Co.

Brake Service

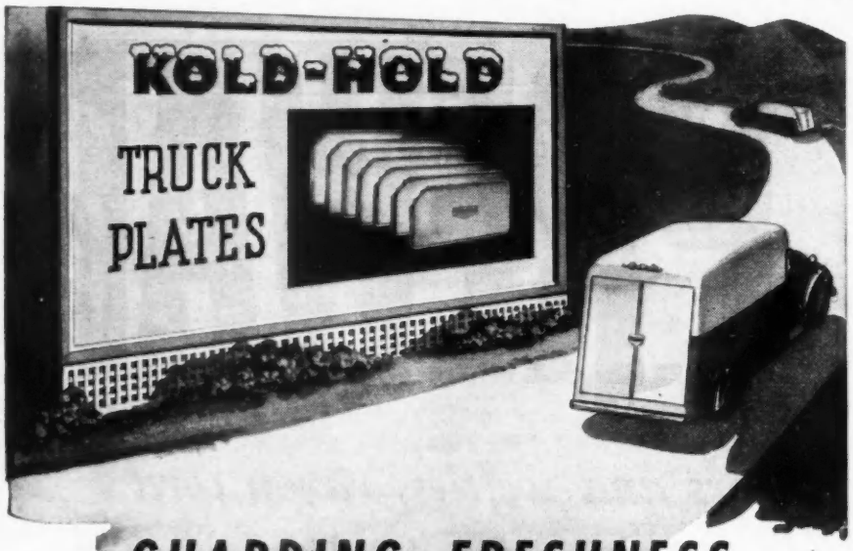
Barrett Equipment Co.

Barrett Equipment Co., St. Louis, is offering a specialized training course consisting of 10 weeks' instruction in automotive brake service work. The school is open to experienced mechanics, shop foremen, service managers and vocational instructors. Specialized training is offered in the inspection and minor repairs of safety components, the maintenance of brake service equipment and related subjects. Tuition is set at $30 for the two-week course, although owners of an approved group of Barrett service equipment pay only $15. The 35-hour instruction week consists of practical shop practice including demonstrations and shop talks. Write E. R. McAtee, director of the school, 2019 Cass Ave., St. Louis.

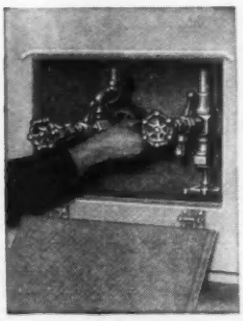
Warner Electric

A training school for fleetmen and their representatives has been organized by Warner Electric Brake Mfg.

(TURN TO PAGE 104, PLEASE)



GUARDING FRESHNESS
ALL THE WAY
COST...LESS THAN A DIME A DAY!



Your perishables stay fresh no matter how long the road, or how hot the day . . . when your trucks have KOLD-HOLD safe-level protection. And at night the undelivered load does not have to be removed only to be reloaded next morning. A simple "plug in" connection makes your trucks "Cooler-Rooms on Wheels."

The efficient design and streamlining of KOLD-HOLD HOLD-OVER Plates permits a free flow of air throughout the truck body, leaving 100% clear plate surface for fast cooling. Specified safe temperatures are held with uniformity. Streamlining also allows the plates to "fit in," leaving a maximum of payload space. Costing less than 10c per day to operate, KOLD-HOLD Plates will give a lifetime of clean — efficient — maintenance free service.

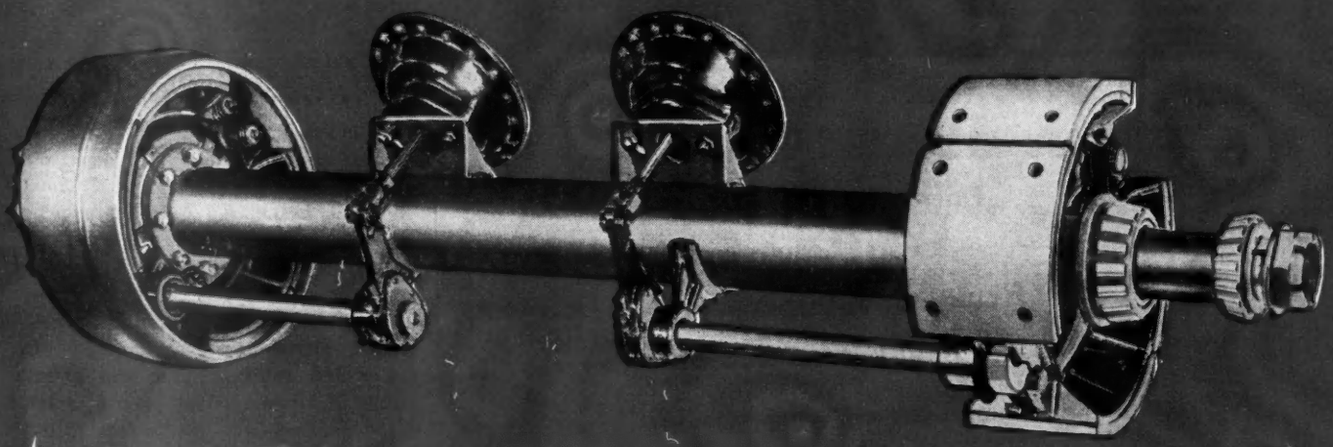
KOLD-HOLD

Jobbers in Principal Cities

KOLD-HOLD MANUFACTURING CO., 620 E. Hazel Street, Lansing 4, Michigan

THERE ARE NONE BETTER at any price

SHULER TRAILER AXLES



(One-Piece TUBULAR or SQUARE)

SHULER AXLE CO., *Incorporated,* Louisville, Kentucky

Detroit Office: 8424 Woodward Ave.

Export Division: 38 Pearl St., New York, N. Y.

West Coast Warehouse: 1280 Forty-Fifth St., Oakland, Cal.

Service Schools

(CONTINUED FROM PAGE 102)

Co. The first class opened August 11, and the five-day instruction session is repeated every second week. Subjects covered are servicing and installation of Warner Electric Brakes and equipment. Classes are taught by qualified instructors through lectures and practical demonstration in the service department. No matriculation fee is required, and instruction manuals, charts, etc., are supplied, being given to the student at the completion of the course. For complete information write Merlin J. Bailey, in care of the company, Beloit, Wis.

The Puritan Co.

The Puritan Co., Inc., is sponsoring a Hydraulic Brake Clinic for the benefit of jobbers and fleetmen. This project is a traveling instruction set-up, using a truck to transport the training material and equipment used in the course. A Puritan technician as well as a sales representative put on the one-showing program which features such subjects as how the hydraulic brake system works, where troubles are likely to occur and how they can be corrected. A glass model system is used to show principles of operation. The lecture which covers also preventive maintenance of the brakes, ends in an open forum answering individual problems of the mechanics. The company plans to reach mechanics in all parts of the country with this program. Dates of instruction in any particular vicinity can be had by writing the company, 573 Lyell Ave., Rochester, N. Y.

Wheel Alignment

Bear Manufacturing Co.

The Bear Factory School, located in Rock Island, Ill., provides instruction, which varies from two to four weeks. It covers such subjects as wheel alignment, wheel balancing, headlight testing, wheel straightening, brake testing and steering gear adjustment and repair. There is no tuition fee; however, a $12.50 registration fee is charged to cover cost of books, manuals and other material used. Any mechanic interested in this phase of automotive repair is eligible to attend.

Classes start each Monday morning and continue through Saturday. The first week and a half is spent in the classroom while much of the second week is spent in actually making corrections on vehicles under the eye of an expert. Experienced mechanics complete the course in two weeks, but a man with no previous experience in this work may require as much as three weeks. W. O. Merritt, Registrar, Bear Factory School, will furnish additional information upon request from fleet operators.

Truck Manufacturers

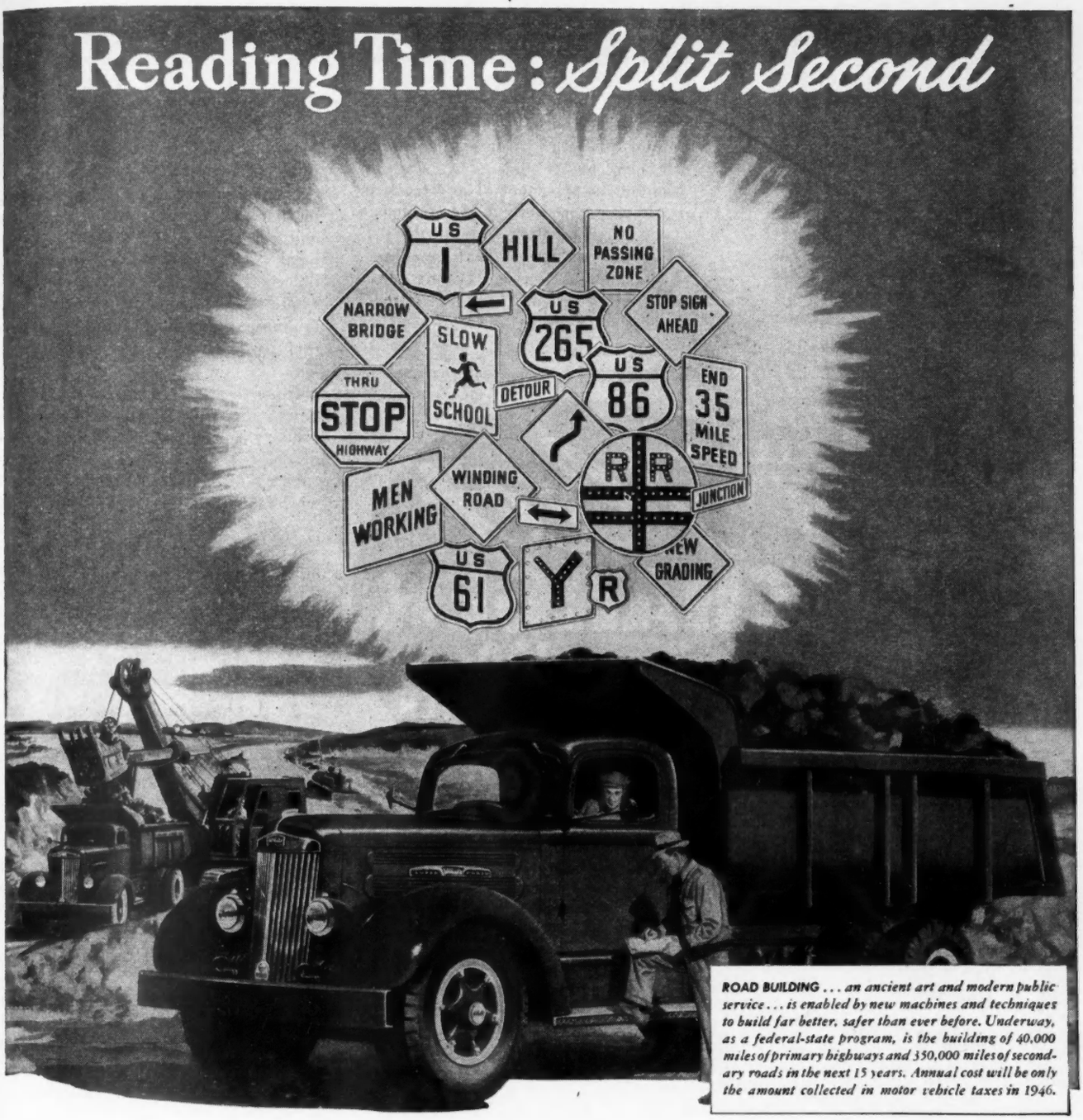
International Harvester

International Harvester Co. has conducted service schools for fleet shop personnel at practically every one of its truck branches. Instruction, which varies usually from two to three days, is free to all personnel selected by fleet operators. Subjects covered include shop management, preventive maintenance, driver and mechanic training, parts and stock control and maintenance of all component parts of a vehicle. Trained IHC instructors provide lectures and demonstrations, and supervise practical shop work carried on by the students.

Schools of this nature are being conducted in various sections of the country at this time. The fleetman desiring more information should get in touch

(TURN TO PAGE 106, PLEASE)

Reading Time: *Split Second*



ROAD BUILDING . . . *an ancient art and modern public service . . . is enabled by new machines and techniques to build far better, safer than ever before. Underway, as a federal-state program, is the building of 40,000 miles of primary highways and 350,000 miles of secondary roads in the next 15 years. Annual cost will be only the amount collected in motor vehicle taxes in 1946.*

THE SIGN LANGUAGE of highway safety is the world's fastest reading. It helps to make our modern high-speed highways safe, easy-to-follow, across the nation. This year, federal, state and local governments, working in cooperation with the American road building industry, will build $1½-billion worth of new construction—with safety and year 'round use paramount in their plans.

As even before the start of the historic "Good Roads Movement" after World War I, Whites are preferred in road building and maintenance service. Correctly selected for the work they do, properly maintained and skilfully manned, Super Power Whites are as modern and as efficient as a "clover leaf" traffic intersection. They enable their owners to control costs with scientific accuracy. The same applies to every truck-using business, as your White Representative will be glad to explain to you.

White

THE WHITE MOTOR COMPANY
Cleveland, Ohio, U. S. A.
THE WHITE MOTOR COMPANY OF CANADA LIMITED
Factory at Montreal

FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS

Service Schools

(CONTINUED FROM PAGE 104)

with his nearest IHC branch to find when he may take advantage of the school. Additional details may be had by referring to the January, 1947, issue of COMMERCIAL CAR JOURNAL, page 62.

General Motors Institute

The General Motors Institute conducts a two-week maintenance training program covering the GM series 71 diesel engines as used in GM trucks and coaches. This course covers construction, operation, disassembly, service repair procedures as well as tune up and trouble shooting of this engine.

Tuition fee is $62. The course is available to personnel of any truck or coach operator using GM equipment. Dates of instruction and further information may be obtained from E. F. Lewis, manager, service training activities, General Motors Corp., Truck and Coach Div., Pontiac, Mich.

Fargo Div. Chrysler Corp.

Special instruction courses have been established by the Fargo Div. of Chrysler Corp. for the benefit of fleetmen. Sessions are conducted either in facilities provided by them, or in the plant at Detroit.

Subjects covered are driver training, mechanical repairs and adjustments and preventive maintenance of equipment. The instruction is usually conducted in the form of a conference where the students have an opportunity to express their opinion and perform such work as may be considered desirable.

From three to ten days is usually required for the instruction. Classes are conducted by experienced technicians. Students are selected by the fleet account, but experienced technicians and mechanics usually attend. Representatives from fleets using Dodge trucks and Chrysler built passenger cars are eligible for admission. R. B. Christiansen, service manager of the Fargo Div. will furnish additional information upon request.

Willys-Overland

Willys-Overland Motors, Inc., has a service school covering all phases of vehicle maintenance, including the engine, carburetion, clutch, transmission, axles, electrical system, brakes and special Jeep attachments. Fleetmen owning Willys-Overland products are eligible, and tuition for the one-week course is free. Eighty per cent of the instruction is actual shop practice whereas the students actually carry out the service. This is supplemented with charts, motion pictures, lectures used in formal classroom instruction. Further details may be had by writing to D. A. Walters, service manager of the company, Toledo, Ohio.

INSTRUCTION AVAILABLE

Engine Overhaul

Sealed Power Corp., in a program to keep fleetmen and mechanics abreast of latest technical information, has some very worth while publications available. "Sealed Power Inside Dope" is a monthly publication dealing with technical information and is available to fleetmen upon request. A film on "Piston Rings and Related Parts," together with a text book to be used by the instructor in presenting the film is available for use in the fleet's mechanic training program. The "Oil and Gasoline Economy Manual" is another book used extensively in training schools. The film and text books are free of charge. Operators should write to C. H. LeFevre, advertising

(TURN TO PAGE 108, PLEASE)

MARQUETTE
REGISTERED U.S. PAT. OFFICE
Fleet
CHARGER
6 OR 12 VOLTS 100 AMPS.
FAST CHARGER-TESTER
Marquette Hi-Rate "188" Fleet Charger is specially designed for Fleet Owners and Bus Operators where fast servicing is essential. At the snap of a switch, the entire testing and charging circuit is converted from 6 to 12 volts. Ideal for fleets using both 6 and 12 volt batteries. Keeps batteries in top flight condition without removing from truck or bus.
HI-RATE "188" FEATURES
• Tests Before Charge
• 30 Second Test
• Shows Exact Charging Time
• Dual Selenium Rectifiers
• Dual Heavy-Duty Transformers
• Full 100 Ampere Charging Rate
• 6 or 12-Volts at snap of the switch
• New type Circuit Breaker protects both Battery and Charger
• High Rate Discharge for Desulphating
• Write for Details
BUY THE BEST . . .
BUY MARQUETTE
SOLD EXCLUSIVELY THRU THE
NATION'S LEADING DISTRIBUTORS
MARQUETTE
REGISTERED U.S. PAT. OFFICE
Charging
EQUIPMENT
HI-RATE "180" PORTO-FAST
TRICKLE-MATIC WALL CHARGERS
MARQUETTE MFG. CO., Inc., Minneapolis 14, Minn.

PERISHABLES ARE SAFE

- Easily installed and transferred.
- Compact. Less than 2 cubic feet required. Saves valuable cargo space.
- Thermostatic temperature control. Set it and forget it. Keeps temperature in cargo space constant without attention from driver.
- Quick warm up . . . full heat in less than 1 minute. 20,000 BTU's per hour.
- Independent of engine. Can be operated during loading or for standby heating.

HERE IT IS—thoroughly proved in aircraft and on highways—the new South Wind Cargoheater! Compact . . . economical . . . it's the biggest little package of heating power ever invented! And definitely *the* answer to hauling perishable cargo in freezing weather.

Best of all, the new South Wind Cargoheater is extremely flexible in its application—can be used for heating the cab as well as cargo space.

So right now, get the inside facts about this great new South Wind heating development. A 5-minute talk with one of our engineers will show you how well the new South Wind can protect your precious cargo on every haul. A line on your letterhead will start the ball rolling. Write: *South Wind Division, Stewart-Warner Corporation, Indianapolis 7, Indiana.*

Another Product of STEWART WARNER

Service Schools

(CONTINUED FROM PAGE 106)

manager, at Muskegon 61, Mich., for complete information and material needed.

Hastings Mfg. Co. has publications available for the training of mechanics in engine overhaul methods. "Successful Reboring" features methods of attaining the best performance from rebored engines. The "Hastings Piston Ring Handbook," a 52-page manual, covers recommended methods of piston ring installation. The "Hastings Bulletin" is a technical publication issued periodically to keep mechanics up to date on the latest overhaul procedures. All this information is available upon request to M. H. Cook, sales promotion department, Hastings Mfg. Co., Hastings, Mich.

Moog Industries, Inc., St. Louis 14, Mo., is in the process of developing a comprehensive list of instructional material which can be used by the mechanic as a guide to improved engine overhaul practices. Various catalogs are available at present upon request.

Wilkening Mfg. Co., Philadelphia, Pa., provides technical information through the Pedrick Engine Repair Manual and bulletin service. These are available by signing the Pedrick fleet agreement with a remittance of $2.

Black & Decker Mfg. Co., Towson 4, Md., has prepared instructional material for fleets in the form of the illustrated booklet, "Principles of Valve Reconditioning." The booklet is free upon request.

Blackhawk Mfg. Co., Milwaukee, Wis., makes available a service manual called "Round the Shop Guide to Porto-Power Profits," a guide to the use of Blackhawk hydraulic equipment.

Painting

E. I. du Pont de Nemours & Co., Wilmington, Del., has made available a booklet, "How to Use du Pont Refinishing Materials," designed to aid fleetmen in attaining better quality work. In addition, motion pictures may be obtained showing how to refinish vehicles. Write the company for details.

Carburetor

Carter Carburetor Corp., St. Louis, has developed a manual entitled "Motor Tune-Up and Carburetor Service Instructions," containing much of the material taught in the Factory Service School, which is restricted to students regularly employed by authorized Carter outlets. The manual may be purchased from any Carter central distributor at a price of $1 per copy. In addition, the company is always glad to provide technical information to fleets upon request.

Zenith Carburetor Div., Bendix Aviation Corp. is at present working on an educational program to aid fleetmen in carburetor service. The course is scheduled to start in January and may be available soon.

Brakes

Wagner Electric Corp., St. Louis, has upon occasion sent out a factory representative to discuss repair problems with

(TURN TO PAGE 111, PLEASE)

OTC
PULLING SYSTEM
MAKES IT EASY
To PULL and REPLACE CLOSE FITTING PARTS
REMOVING CRANKSHAFT GEAR
Bearings, pinions, collars, sprockets, gears, snap rings, shafts, sleeves, wheels and other "tuffies" are quickly and safely removed and installed with OTC PULLERS, attachments and Special Tools. They speed up overhauling jobs, stop parts damage, conserve energy, avoid skinned knuckles, shorten "down time" on trucks.
Approved by all Leading Bearing Manufacturers.
OTC No. PE-12 SET handles the widest possible range of work on trucks, busses and tractors—with minimum number of OTC TOOLS.
ASK YOUR JOBBER or write for OTC Catalog.
It's a helpful manual on pulling operations.
OTC TOOLS
OWATONNA TOOL CO.
335 CEDAR STREET, OWATONNA, MINN.
OTC
THE ONLY COMPLETE PULLER LINE
HUB PULLER
PILOT BEARING PULLER
PULLING ATTACHMENTS
GRIPOMATIC
PUSH-PULLERS
Heavy Duty BOX WRENCHES

WHO IS IT?
CHRYSLER CORPORATION'S DYNAMIC PRESIDENT HAS ONE OF THE FINEST COLLECTIONS OF CHINESE ART IN AMERICA. HE IS...
☐ FRED ZEDER
☐ JOHN DODGE
☐ K. T. KELLER
☐ CARL ZIMMERSHEID
Answer on P. 111

Service Schools

(CONTINUED FROM PAGE 108)

service men in the field. Fleetmen with specific problems should get in touch with L. C. Dobrunz, manager, sales promotion department.

Machine Tools

Sunnen Products Co., St. Louis, is prepared to provide instruction at the factory in the various phases of engine rebuilding the equipment is designed for. This technical information and operating instruction is further supplemented by aid from field representatives when called in. All requests for service calls from users of Sunnen equipment will receive prompt attention.

Wheel Alignment

Bee Line Co., Davenport, Iowa, is in the process of building a new factory which will house facilities for bringing up to date instruction to users of this equipment. At the present time the company is making arrangements with their equipment users to train mechanics in wheel alignment practices. Manuals on this equipment are available without charge.

John Bean Mfg. Co., Lansing 4, Mich., has developed a "Wheel and Steering Alignment Training Kit" consisting of a 116-page manual with some 214 illustrations, and two training films for quick, accurate instruction of steering service mechanics in the theory and operation of wheel and steering systems. The Kit sells for $8.50. Manual and films are designed to supplement each other, but they can be used separately. Kit is $8.50, Manual is $2, the Theory film is $4 and the Operational film is $2.50.

Weaver Mfg. Co., Springfield, Ill., has prepared a 158-page manual called the "Weaver Course in Wheel Alignment" consisting of 12 separate "lessons" on wheel alignment, balancing and frame straightening. Study of its contents will enable the average mechanic to take over the alignment department. Price is now 50 cents per copy. Other publications which are free are the "Manual of Brake Service," and "Manual of Headlight service."

Micro-Linor Service Corp., Detroit, will give one day's instruction without charge to any Micro-Linor user. This instruction covers the correct use of Micro-Linor gages as well as fundamentals of wheel alignment. In addition, a 28-page manual, The A B C's of Wheel Alignment, is available without charge.

Axles and Transmissions

Timken-Detroit Axle Co., Detroit, has been for a number of years promoting educational programs for mechanics on the subjects of axles and brakes. Organized clinics and meetings are used to disseminate information designed to train operators, mechanics as well as drivers. Among other mediums a new sound film in full color on the new "3 for 1" axle has been presented to dealers and fleetmen. This is supplemented by line folders, charts, posters, etc. to show the operation of the units. These programs and the available material is at the disposal of Timken regional representatives, who condut such meetings. Services are available to fleet operators, without charge.

Fuller Mfg. Co., Kalamazoo, Mich., is prepared to offer technical advice and engineering information upon direct request from the fleet operator. In addition, illustrated instruction material has been made available on the operation, lubrication and maintenance of Fuller equipment. All of this material is available without charge to the fleetman.

Engine Manufactures

The Cummins Engine Co., Columbus, Ind., has developed methods, procedures

(TURN TO NEXT PAGE, PLEASE)

● WHO IS IT?

(Answer . . . To Question on P. 108)

K. T. Keller, who has an established reputation in art circles. He formerly served on the Board of Trustees of the Detroit Air Institute.

(Another Cartoon Quiz on P. 112)

SMOOTH! ECONOMICAL! SAFE!

PUT SAFETY IN TIRES

WITH

PUNCTURE-RESISTANT

EVEN-AIR

COMPOUND

The sealing properties of EVEN-AIR COMPOUND instantly seal all ordinary punctures, maintaining proper air pressure and keeping the wheel in balance.

EVEN-AIR COMPOUND IN TORTURE TESTS: Tire withstood spikes, nails, and screws driven through tube, then taken out. All punctures sealed, no flats in repeat tests.

EVEN-AIR—Used and approved by Borden's Farm Products, Socony Vacuum Oil Co., Truck Division, Inter-City News Co., U. S. Post Office Dep't., Universal Cartage Co., State of New Jersey, Highway Dep't., and national fleet operators.

mfd. by

EVEN-AIR CORP.

P.O. BOX 111 ● CALDWELL, N. J.

OFFICES: 11 West 42nd Street, New York

Service Schools

(CONTINUED FROM PAGE 111)

and tools which will enable an owner to secure the greatest possible output from his Cummins engine. Informal instructions covering standardized repair procedures, shop practices and preventive maintenance schedules are available primarily to dealer personnel. This information is passed on to the fleetman through Cummins dealers with the assistance of the Cummins regional service representative. In addition the company provides service bulletins to fleets containing practical service information. Special shop manuals, charts, slide films are used by dealers and are available to fleetmen on a loan basis.

Truck Manufacturers

The GMC Truck & Coach Div., General Motors Corp., Pontiac, Mich., has prepared in the form of easel charts, illustrations and instructors outlines, specialized training programs covering mechanical features of both trucks and coaches. This material is released to field service representatives who in turn conduct classes for dealers as well as fleetmen. This instruction covers two-hour periods and is free.

The Ford Motor Co. provides technical instruction to regional service managers, who in turn conduct meetings for dealers and truckmen in disseminating this information. Instruction covers overhauling, reconditioning of all parts and assemblies along with service data. Latest engineering information is revealed at these meetings. Such information is available free of charge.

Mack-International Motor Truck Corp., New York, provides service bulletins covering any new design released for production. A school is set up on Long Island to train service representatives as well as fleetmen who request such instruction. However, most information is brought to the fleet field through engineering advice from the branch service organizations, the branch esrvice manager or the division service manager.

The Four Wheel Drive Auto Co., Clintonville, Wis., conducts a Customer Service School, usually held at the dealer's place of business. The school lasts for four to six hours and is more or less informal, being open to questions or problems from the class. Cut-away models of various units are used, and actual repairs, adjustments, maintenance and driving instructions are explained with models, films and slides. This service is free and may be obtained by contacting the nearest local FWD dealer.

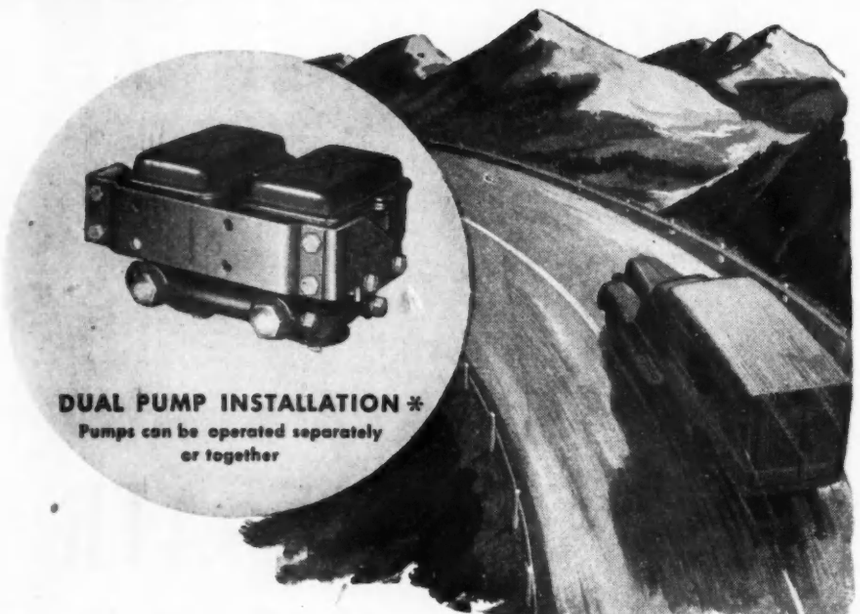
The White Motor Co., Cleveland, Ohio, provides technical advice and engineering information to fleetmen through traveling technical engineers plus an elaborate master maintenance manual. This service is available to all White owners. Prepared instruction material is also available to White owners upon request.

The Diamond T Motor Car Co., disseminates technical advice through traveling inspectors who are competent mechanics. A request to the factory or through the local dealer will procure such information free of charge.

END

(Please resume your reading on P. 60)

KEEPS 'EM ROLLING... KEEPS 'EM CLIMBING



- Ends vapor-lock
- Operates only when needed.
- Insures quick starting in any weather.
- Reduces operating costs.
- Available for 6 or 12 volt installations.

* SINGLE UNIT ALSO AVAILABLE.

Stewart-Warner Corporation, 1876 Diversey Parkway, Chicago 14, Illinois

STEWART-WARNER
Electric Fuel Pump

WHICH OF THESE WOULD BE MOST INTERESTED IN A "MOULAGE CAST"?

- ☐ DETECTIVE
- ☐ BODY DESIGNER
- ☐ METALLURGIST
- ☐ FOUNDRY FOREMAN

Answer on P. 114

Aiming Screen

(CONTINUED FROM PAGE 45)

projected will serve as a screen. A fixed black mark on the center of the screen facilitates aiming the centerline of the vehicle at the screen's center. The screen's other requirements are a black horizontal line arranged so that its height above the floor may be varied, depending upon the height of the lamps to be aimed and a movable vertical marker on each half of the screen in order that it may be placed directly in front of the lamps on that side of the truck.

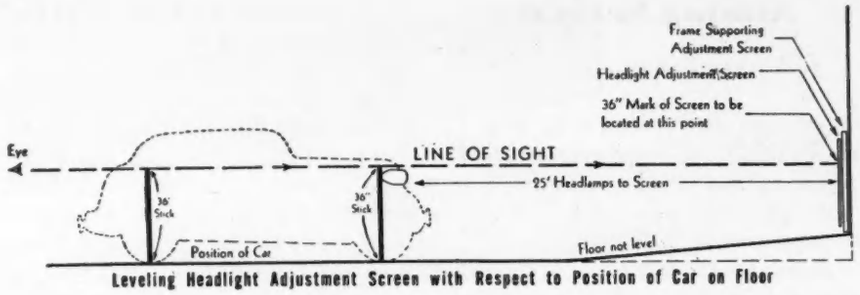
All headlamp, fog, and "road" lamp aiming instructions are based on placement of the vertical markers directly in front of their respective lamps to be aimed. That is, if one lamp is 18 in. to the left of the vehicle's center line, the vertical marker for that lamp should also be 18 in. to the left of the screen center line.

Placement of the horizontal line, however, varies not only with the height of the lamps on the car, but also with "loading allowance" (how much beams will be tilted upward when the vehicle is normally loaded), manufacturer's instructions, and state regulations.

The aiming procedure for all vehicles equipped with sealed beam headlamps, is standardized, but those for vehicles not so equipped vary considerably as do the instructions for fog and other auxiliary lamps. To meet these requirements, the aiming screen may be made in any number of simple ways.

Plywood, Muslin or Paint

A SHEET of plywood wallboard stiffened with wood framing on the rear side makes an excellent screen, as does white muslin or duck stretched over a wood frame. If a smooth wall is available, it can be painted white for use. Flat white paint in this instance shows up the beam patterns better than glossy finishes. It is important that the surface be smooth to prevent distortion of patterns. The vertical center stripe should be painted about one-half to 1 in. wide; and if the screen is permanently installed, as on a wall, so placed that the center line of the truck is aimed at it.



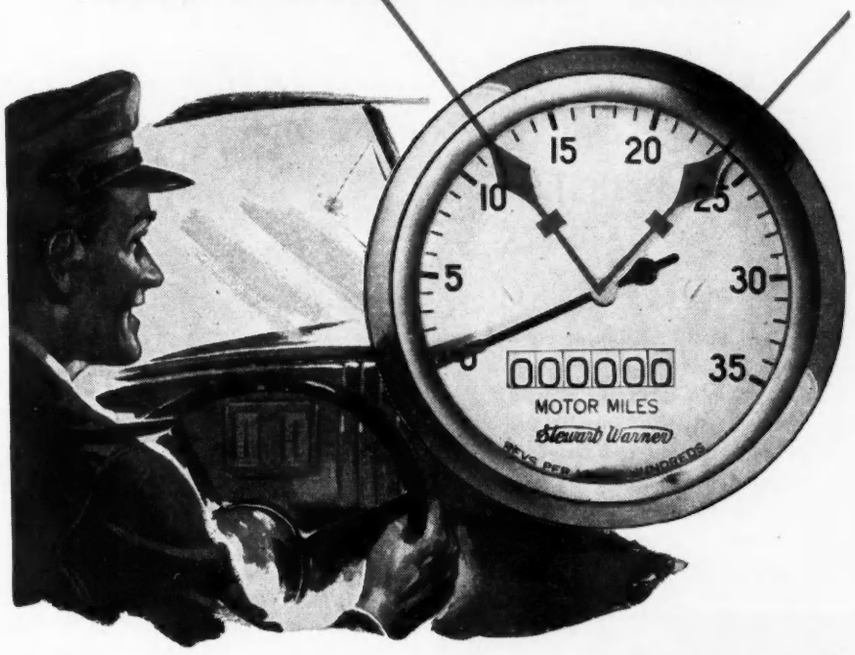
Leveling Headlight Adjustment Screen with Respect to Position of Car on Floor

Adjustable Horizontal Stripe

LIGHT-WEIGHT cord, tape or a thin rigid bar of wood or metal will serve as an adjustable horizontal stripe. The stripe should not be over

(TURN TO NEXT PAGE, PLEASE)

SAVES UP TO 25% ON FUEL AND OIL!



GIVE your driver this easy, visual check to help him keep within the Economy Range . . . those engine speeds at which a truck operates with peak efficiency and economy.

He just keeps his engine speeds between two stationary red pointers on the face of the tachometer dial . . . reducing fuel consumption and increasing the life of the truck.

Stewart-Warner's Motor Mile Tachometer also records all engine revolutions—whether idling or traveling—providing an accurate record of motor mileage to show when engine re-service is needed . . . reducing maintenance costs up to 25%.

Write today for complete details and prices. Stewart-Warner Corporation, 1876 Diversey Parkway, Chicago 14, Illinois.

STEWART-WARNER
Motor-Mile Tachometer

Aiming Screen

(CONTINUED FROM PAGE 113)

¾ in. wide and at least 6 ft. long—preferably 8 or 10 ft. It is centered laterally on the vertical center stripe.

If a cord or tape is used, it should be supported at the ends by hooking to screw hooks or nails. A vertical row of nails driven on 1 in. centers for each end will suffice. The lowest hooks should be about 12 in. above the floor level and the highest about 42 in. to include everything from low fog lamps to high headlamps. A wire loop or hook is attached to one end of the cord and a coil spring inserted before a similar hook at the other end to maintain tension.

A rigid bar if utilized as a horizontal stripe may also be supported by a similar arrangement of nails or hooks. When the screen is painted on a masonry wall, the hooks can first be driven into wood strips and the strips attached to the wall with concrete pins or expansion belts.

Vertical Markers

THE two movable, vertical markers may each consist of a length of ⅛ in. sash cord or flat tape weighted at the lower end and supported by a wire hook or picture hook over the top edge of the screen. It is advisable to make them long enough to extend below the movable horizontal marker in its lowest position. The screen can be marked horizontally outward from the center line on each side in 1-in. steps. This will facilitate placing the vertical markers at a distance from the center corresponding to those of the lamps on the vehicle.

Placement of Screen

PROPER placement and alignment of the screen is most important to its efficiency. Lamp lenses as previously stated, must be 25 ft. from the screen when the vehicle is in position. The center line of the vehicle is to be aimed at the vertical center line of the screen.

By observing the following method, the screen will be automatically aligned regardless of the slope or unevenness of the floor. Place a yardstick (or any stick accurately 36 in. long) next to the front left wheel hub and another at the left rear wheel hub—then sight from the top of the rear stick across the top of the front stick to the screen. The point sighted on the screen will be 36 in. above the level of the floor on which the left side of the car is standing. This procedure is repeated for the right side.

Once the position of the horizontal bar is thus established with respect to normal position of the vehicle, it may be moved up or down to correspond with the height of the lamp.

To insure that the truck is placed properly in front of the screen, paint a white stripe on the floor from beneath the screen center line to the rear of the vehicle in normal position. A 6- or 8-ft. cross stripe from the screen will mark the desired distance for the headlamp lenses.

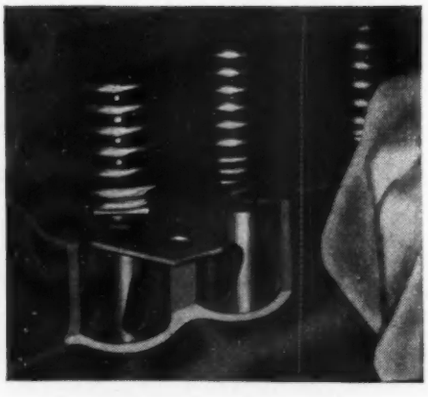
END

(Please resume your reading on P. 46)

V-8 VALVE JOBS MADE EASY!

WITH Johnson ADJUSTABLE TAPPETS

Do the job right! Install Johnson Adjustable Tappets in Ford and Mercury V-8's (85-100 HP engines). No expensive shop equipment is needed. Installations are made in half the ordinary time and without the task of fitting valves. Special spanners are included with each set of tappets, leaving both hands free for quicker and more accurate adjustments. Each tappet maintains its setting and gives many thousands of miles of superior engine performance.



The millions of Johnson Tappets in use today are giving dependable service and providing smooth, quiet engine performance.

You'll find that you will make larger profits and gain more satisfied customers when you install Johnson Adjustable Tappets.

AVAILABLE AT N.A.P.A. WAREHOUSES AND JOBBERS

Johnson PRODUCTS INC.
MUSKEGON, MICHIGAN
"Tappets Are Our Business"

● WHAT IS IT?

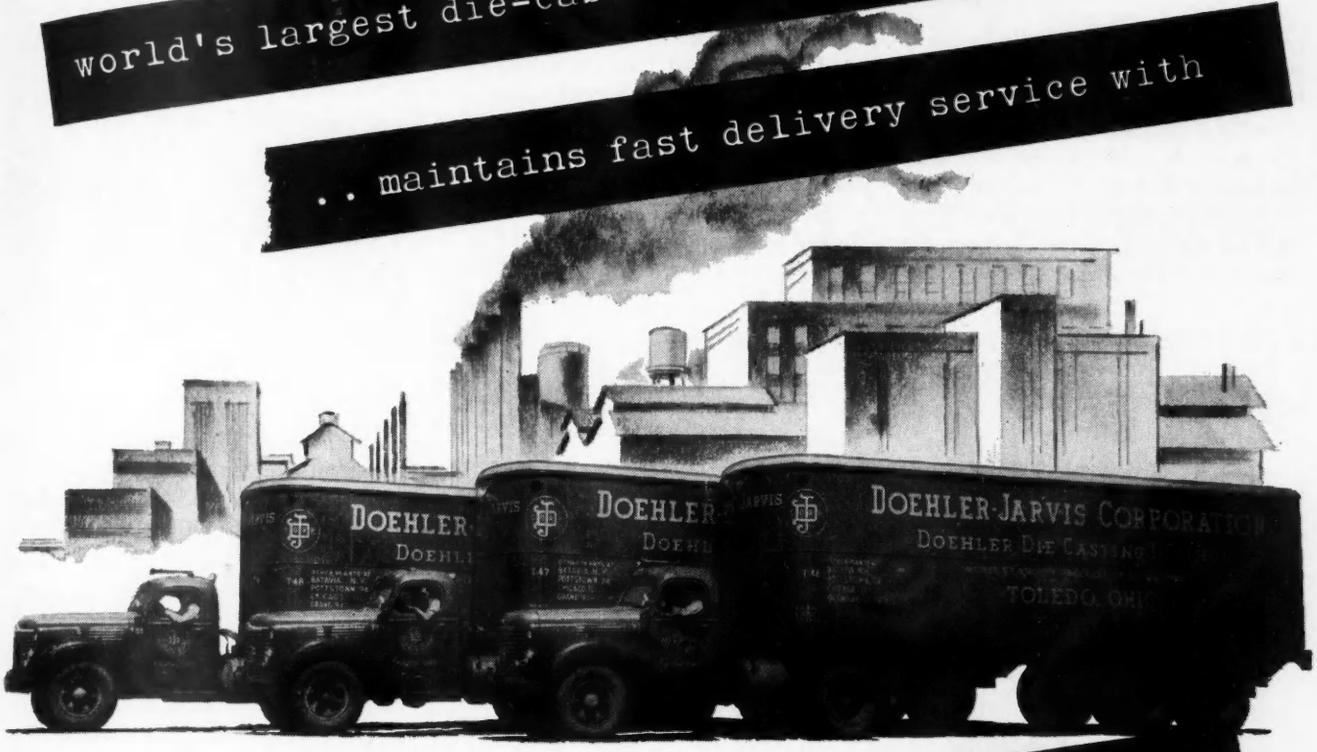
(Answer . . . To Question on P. 112)

The detective. Moulage casts are casts of tire tread marks. They are used in the apprehension of hit and run drivers.

(Another Cartoon Quiz on P. 116)

world's largest die-casting producer . . .

. . maintains fast delivery service with



BANTAM SUPERCARGO TRAILERS

"Doehler-Jarvis" has become synonymous with the best there is in die-castings, but this producer is never satisfied. To serve their customers better, Doehler-Jarvis Corporation speeds deliveries of die-castings with a fleet of trailers including three huge *Bantam Supercargo Tandem Vans.*

The ingenuity of this famous manufacturer is further evidenced by the use of their fast delivery fleet for picking up metal ingots and other manufacturing materials on return trips. Thus Doehler-Jarvis Corporation maintains complete control over the transportation facilities required for handling approximately 7½ million pounds of materials and finished products per month.

This unique system enables the operator to utilize, to the fullest extent, the operating economies offered by *Bantam* Supercargo: (1) Advanced Design, (2) Engineered Construction and (3) Production-Line Economy.

If you are interested in better trailer performance, less driver fatigue and more value for your money, let us send you "A Great Name in Trailers." *Write today!*

BANTAM SUPERCARGO TRAILERS

AMERICAN BANTAM CAR COMPANY, BUTLER, PENNA.

Excise Taxes

(CONTINUED FROM PAGE 57)

road building. Superficially, there is some attraction to such proposals. But the attractiveness, highway user groups believe, is only a surface one.

Federal Aid, ever since its origin, has been provided from general funds of the government. There never has been the slightest relation between the amount of Federal Aid spending and the receipts of any Federal automotive tax. Nor has any intention to "link" them ever been hinted by Congress.

On the contrary, Congress has always shown its belief that Federal Aid from general funds is a national responsibility, arising from Constitutional obligations to the general welfare, the national defense, interstate commerce and delivery of the mail.

If Federal Aid should now be linked to receipts from a Federal automotive tax, there is little doubt that that would spell the total end of the original Federal Aid concept. Instead of making aid available from general funds, the Federal Government would probably limit that aid to the amount of Federal automotive tax receipts.

The upshot would be that the Federal Government would collect auto taxes only to return them to the states —minus whatever funds were spent administratively.

The end effect would be to help burden the highway user with 100 per cent of all highway costs, with no Federal Air at all. For "aid" ceases to be aid when it is collected for in advance.

For these reasons, any attempt to put a "linkage formula" into law, or to perpetuate the emergency Federal automotive taxes, will face determined opposition in Congress from highway users.

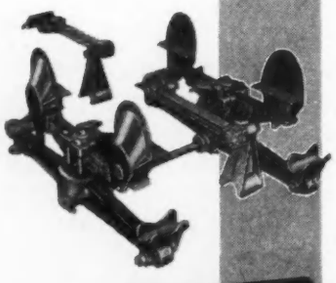
Some 600 organizations of these highway users, representing millions of members from all areas of the country, have signed petitions urging the repeal of the Federal automotive excises. These petitions, presented to every member of Congress, also make clear the position of these users against "linkage."

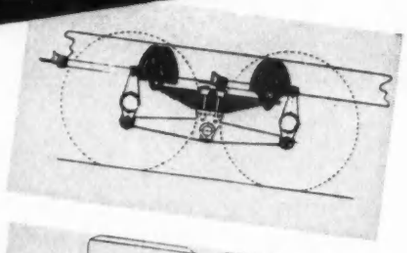
END

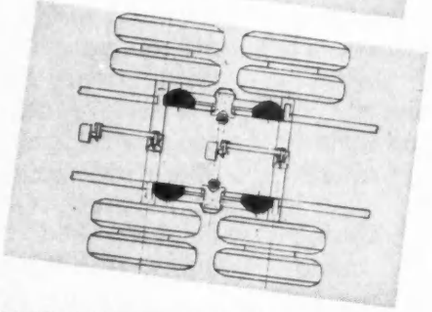
(Please resume your reading on P. 58)

4 - POINT FRAME MOUNTING

eliminates the concentration of stresses at any one point on the frame.







HENDRICKSON TANDEM

HENDRICKSON MOTOR TRUCK CO.
Wabash Ave. at 36th Street
CHICAGO 15, ILLINOIS

Follow the Leader!

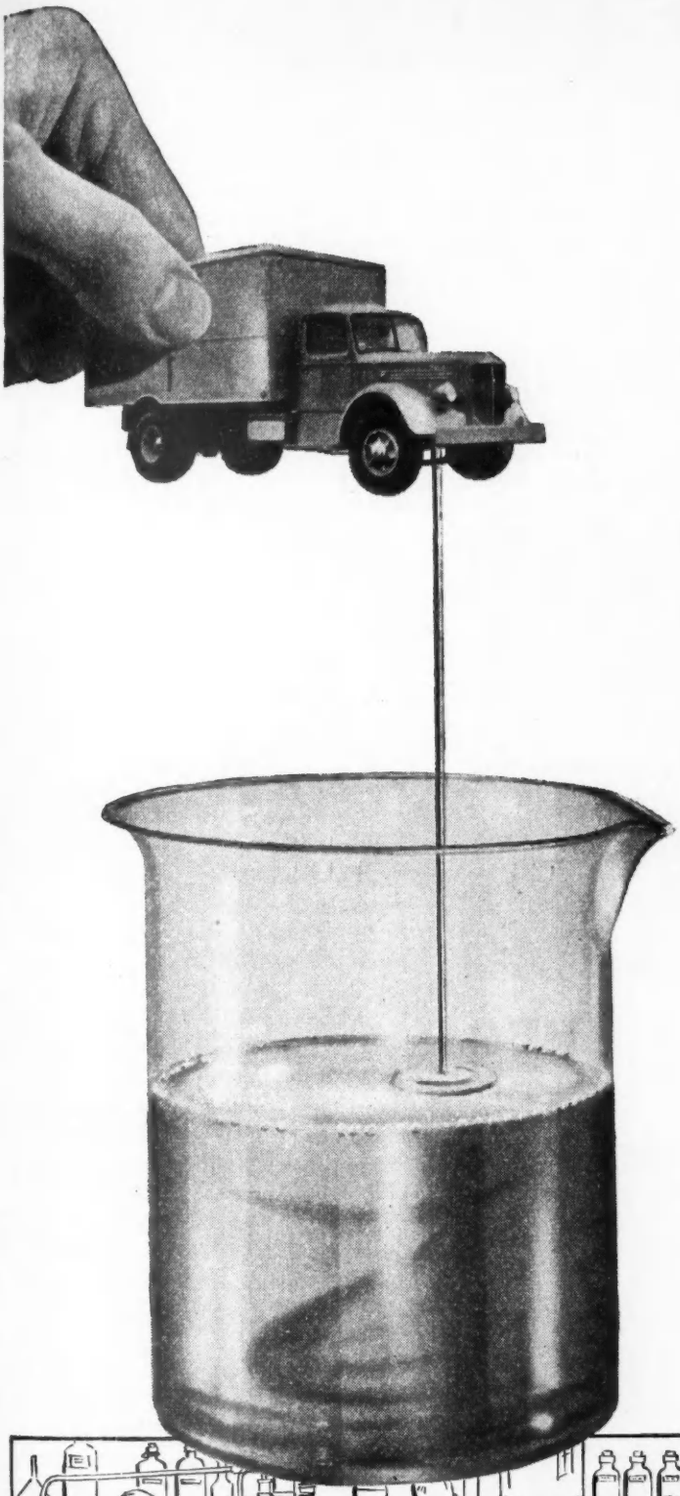
HENDRICKSON TANDEM

WHO SAID IT?

THIS SAYING IS ATTRIBUTED TO THE MAN WHO BUILT THE LARGEST WHEEL MANUFACTURING COMPANY IN THE AUTOMOTIVE BUSINESS—IT'S JUST AS EASY TO WRITE A CHECK FOR THIRTY THOUSAND DOLLARS AS IT IS FOR THIRTY. THE ONLY DIFFERENCE IS A LOT OF GOOSE EGGS."

- ☐ W. C. DURANT
- ☐ JOHN KELSEY
- ☐ WALTER O. BRIGGS
- ☐ CHARLES T. FISHER

Answer on P. 118



Look for signs of trouble in your used oil

To keep your hard-to-replace trucks on the road longer, take these two precautions: First, use *improved* Valvoline — the original Pennsylvania oil — and second, get a thorough check-up on crankcase drainings through Valvoline Fleet Control Laboratory Service. Such a check-up often reveals costly trouble in the making.

Valvoline Motor Oils give engines full protection; that's been proved by millions of miles' service in every type fleet. And as a Valvoline user, you can get the services of our "Fleet Lab" staff of experts, who are equally at home in the laboratory and the shop.

They will tell you the safe, efficient drainage period for your motor oil; they'll suggest what to do if the condition of your drainage sample indicates faulty operation. Remember -- "a stitch in time, saves nine."

Ask your Valvoline man how you can get this service—or write

VALVOLINE

FLEET CONTROL LABORATORY SERVICE

FREEDOM-VALVOLINE OIL COMPANY

Dept. 41-A Freedom, Pennsylvania

Stencils Speed Truck Painting

(CONTINUED FROM PAGE 40)

fits derived pay off handsomely and has devoted much time and thought to the process of making the delivery trucks which shuttle about the city an important selling arm of the business.

Coca-Cola runs its own paintshop, a surprisingly simple and low cost setup, with one skilled painter and a handyman to help out. Two types of job comprise the work—painting of all new trucks with the company's special yellow and red basic background and repainting older trucks about once a year. An average of three to four trucks a week go through the shop and are completely painted and lettered. The shop itself consists of a metal spray booth in one corner of a large storage garage and a work space in front of the booth where the lettering is done. The booth is equipped with exhaust fans and compressed air for the spray guns.

Like all fleet operators, the Detroit bottling unit is ever on the alert for new wrinkles that will cut costs. Because of the considerable amount of advertising insignia used on trucks, the lettering and decorative material represents a cost item that is watched closely. Considerable savings have been effected in cost of this work over the past few years through adoption of a technique involving use of an adhesive-coated paper stencil supplied by a commercial firm in Detroit—Ashley-Quixign Co.—which cuts the stencils according to specifications and designs approved by Coca-Cola.

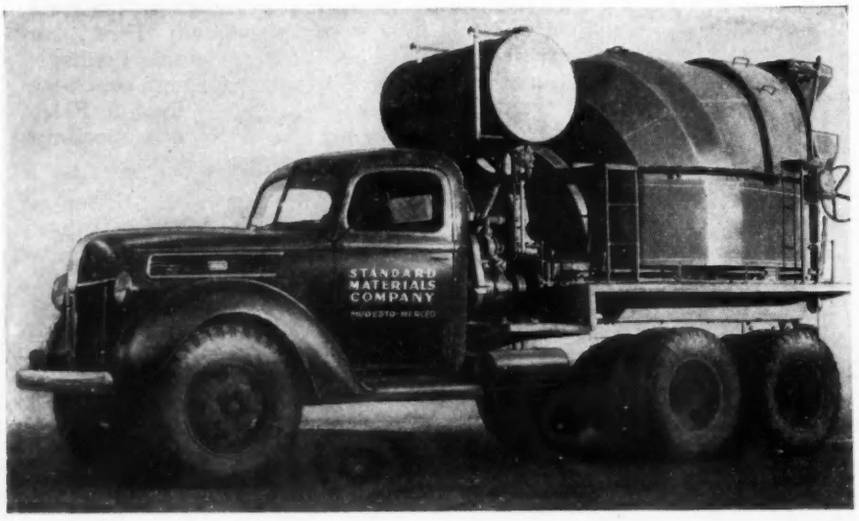
50 to 75% Saving

BEFORE the paper mask method was adopted, all truck signs were painted by hand. Not only was the cost much higher, but the signs did not stand up under daily washing as well as those put on with the current method which allows several passes with a spray gun to build up extra coats of paint and give the sign an embossed effect. Savings in cost over hand painting are estimated at from 50 to 75 per cent. The company started using the method back in 1941 and now about 200 Coca-Cola bottling units throughout the country are using it.

In keeping with the importance of advertising at Coca-Cola, lettering of trucks at the Detroit plant is under the direction of William Heine, advertising manager. He supervises all layout and color combinations. Because of standardization of design, the company keeps a file of 31 stencils with the various slogans and decorations and fits them in combination to the different units, such as panel and deck trucks.

In preparing trucks for repainting, careful attention is paid to having a perfectly clean surface. The truck is washed, sanded, and gone over with a cleaner to remove all dirt, scale or other accretions. It then is given two

(TURN TO PAGE 120, PLEASE)



LIKE FABCO DUAL DRIVES

Standard Materials Company of Modesto and Merced, California, operate a fleet of Ford trucks equipped with Fabco Dual Drives, which they have found most satisfactory in delivering ready mixed concrete from their plants directly to the forms where it is poured. After having tried out Dual Drive chain drives, they decided to standardize on Fabco Dual Drives. They like the simple declutching arrangement of the second driving axle which makes for easier rolling and higher speed on the highway. Upon reaching the job, the driver engages the second driving axle, shifts into under drive, and he has all of the power and traction he wants, and his vehicle is under perfect control. Yes, Fabco Dual Drives add a lot to what you can get out of a standard medium duty truck.

28 Years in this Business

Fabco

F. A. B. MANUFACTURING CO.

1249 SIXTY-SEVENTH STREET · OAKLAND 8, CALIFORNIA

Dual Drives · 6 and 10 Wheel Units · Logging and Highway Trailers · Frame Extensions

● WHO SAID IT?

(Answer . . . To Question on P. 116)

John Kelsey, who organized the Kelsey Wheel Co. for $1,000,000.00 and in 8 years had expanded it to a point where it was recapitalized at $13,000,000.00.

(Another Cartoon Quiz on P. 120)

Quick Starting All Winter

FOR YOUR ENTIRE FLEET

Don't let winter starting trouble snarl up your schedule. Put Casite in all your motors now! Casite retards congealing of oil . . . lets engines spin over rapidly and *go* . . . even at sub-zero temperatures. It improves lubrication and cuts engine wear, too—restores zip and power to sluggish motors, assures better break-in of new or rebuilt motors.

Cut operating expenses. Get the most out of your motors. Use Casite all-year-round.

Get Casite's *extra* protection.

THE CASITE CORPORATION • HASTINGS, MICHIGAN

EASY TO USE

Put Casite in the crankcase every oil change and through the air intake of gasoline motors every three months—a pint for all passenger cars and small trucks; 10% of crankcase capacity for all others.

Improves Lubrication

☆

Cuts Engine Wear

Stencils Speed Truck Painting

(CONTINUED FROM PAGE 118)

coats of primer and two coats of enamel, after which it is ready for lettering. Before the lettering is applied, the surface is gone over again, using a cleaner if necessary.

Two Types of Adhesive

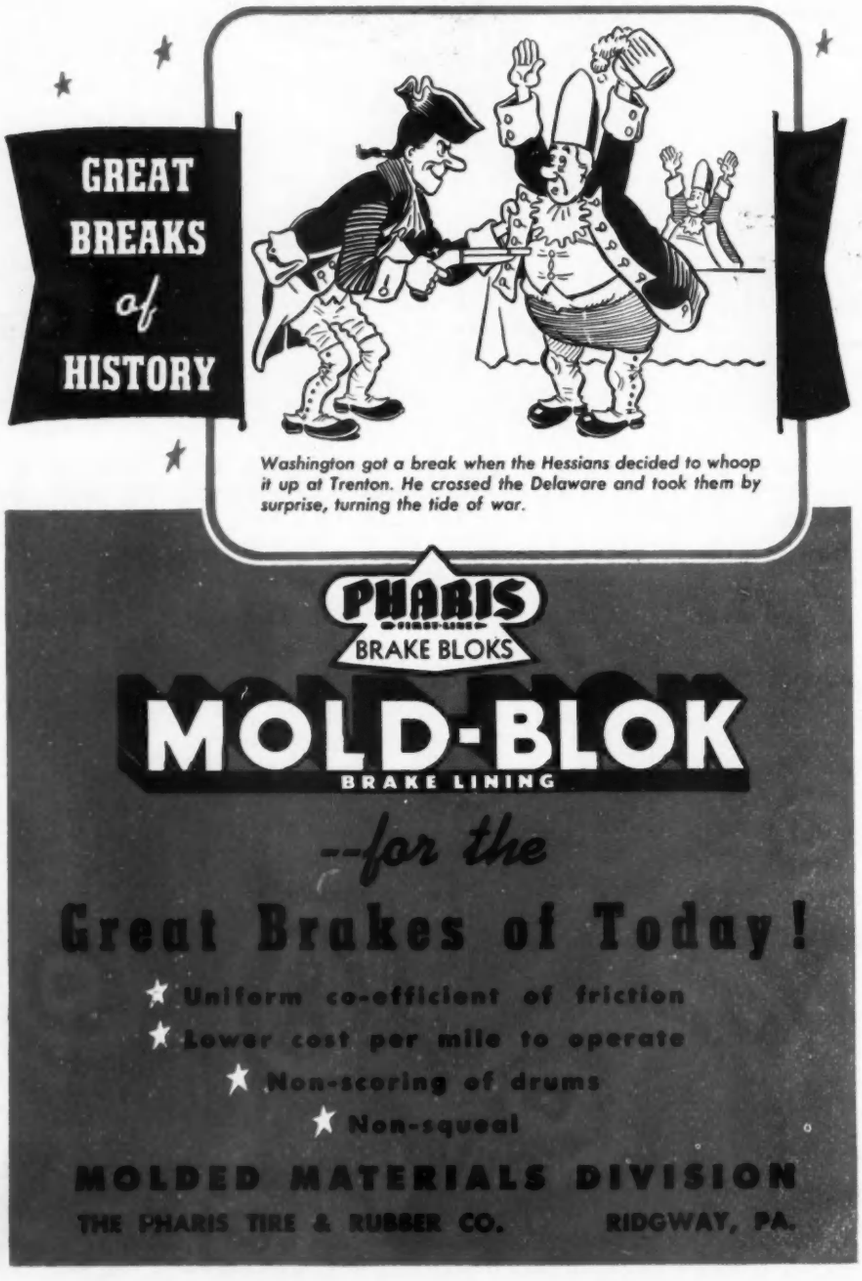
THE masking stencils come in two forms—untreated, and pre-coated with adhesive and covered with a slip sheet of crinkly paper which can easily be removed. Coca-Cola uses the uncoated type and sprays the stencil with a special adhesive shortly before using. Uncoated stencils are much easier to store in limited space, an important factor where large numbers of different stencils are kept on hand. The masks are sprayed with a special adhesive on a piece of coarse screen to avoid sticking. If, after several have been sprayed, the screen has a tendency to become tacky from the over-spray, it is dusted with talc.

Step by Step Process

WITH the proper location of the stencil chalked out, it is placed in position and rubbed down to erase any wrinkles and to assure a tight seal in order to prevent under-flow of paint at the edges. The "ties"—narrow strips of paper which hold the stencil together—then are cut out with a small, sharp, pointed knife blade. After taping old newspapers around the edge of the stencil to protect the immediate surrounding area from spray mist, the painter is ready to go to work. By using a quick-drying synthetic enamel, he can apply three or four costs with only a short interval between each application. He usually has several masks in place at once so that he can let the first one dry while he is spraying the rest and by moving in rotation can keep going until the job is done.

Immediately after the paint is dry, usually a matter of minutes, the stencils can be removed. The first step is to remove the centers of closed letters such as an "O" with a small pointed knife, being careful not to dig into the surface underneath. Then the whole mask is peeled off, leaving the design in bold relief. The entire operation, incidentally, from spraying the adhesive to removing the stencil is done by a handyman with no special skill in painting. Heine says that is one of the chief advantages of the method, since skilled painters are difficult to

(TURN TO PAGE 122, PLEASE)


GREAT
BREAKS
of
HISTORY
Washington got a break when the Hessians decided to whoop it up at Trenton. He crossed the Delaware and took them by surprise, turning the tide of war.
PHARIS
BRAKE BLOKS
MOLD-BLOK
BRAKE LINING
--for the
Great Brakes of Today!
★ Uniform co-efficient of friction
★ Lower cost per mile to operate
★ Non-scoring of drums
★ Non-squeal
MOLDED MATERIALS DIVISION
THE PHARIS TIRE & RUBBER CO. RIDGWAY, PA.

WHERE'S HOMER?
HOMER
100
HE'S AMONG THE 73,000 AT SOLDIER FIELD CELEBRATING THE 100TH BIRTHDAY PARTY OF...
☐ TIMKEN-DETROIT AXLE CO.
☐ INTERNATIONAL HARVESTER
☐ BENDIX PRODUCTS CO.
☐ STANDARD OIL CO.

Answer on P. 122

PERFORMANCE GOES UP IN SMOKE

WHEN WORN ENGINE BEARINGS CAUSE OIL PUMPING

When your fleet units start laying down a smoke screen, they're pumping oil. Oil pumping starts with worn engine bearings. Check for worn engine bearings on every overhaul—when worn, replace with Federal-Mogul, the genuine oil-control bearings.

A recent survey shows Federal-Mogul engine bearings *best known brand* to:

53% OF THE JOBBERS
50% OF THE MECHANICS
62% OF THE FLEET OWNERS
42% OF THE CAR OWNERS

Replace in Sets with Genuine

FEDERAL-MOGUL

Oil-Control Bearings

The Complete line—over 7,000 numbers: Engine Bearings • Bushings • Connecting Rod Exchange • Reconditioned Connecting Rods • Rebabbitted Connecting Rods • Connecting Rod Bolts and Nuts • Bearing Metals • Laminated Shims • Solders

FEDERAL-MOGUL SERVICE
DIVISION FEDERAL-MOGUL CORPORATION
COLDWATER, MICHIGAN

Stencils Speed Truck Painting

(CONTINUED FROM PAGE 120)

find and much more expensive to hire. His company maintains a skilled sign painter for special jobs, but he does nothing on trucks.

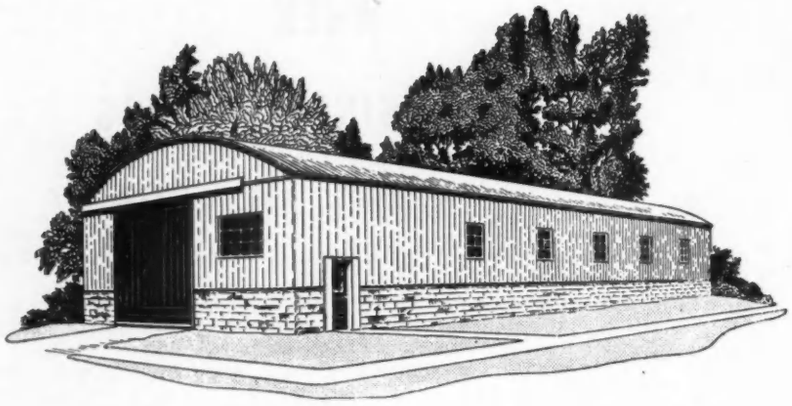
Occasionally Coca-Cola uses decals for bold sharp color effects in more intricate designs, Heine says. They are used sparingly, however, since the cost is from three to four times that of paper stencils. It is also possible to get several colors in one design with the stencil method, by using the background for one color and one mask for each additional color desired. Stencils can be cut with intricate silhouettes, but it is difficult to get the three dimensional effect that can be obtained with decals in detailed designs, although shaded lettering in both block and script lettering is possible to give an illusion of depth.

A good measure of the cost saving resulting from the stencil method is that it is much faster than hand painting. Heine says a 175-case deck truck now can be lettered in one day complete with two 13-in. silhouette designs in two colors, five slogans, three truck numbers, and the product name in three places. The same job would take at least two full days if done by hand painting. He says that chief advantages are the relatively low cost of stencils because of the large number used, which permits economy of manufacture by the supplier; use of relatively unskilled help to apply them, which further reduces cost; less down time for trucks because of the speed of the lettering operation, and greater durability to withstand repeated washing. He has found also that for best results, the job should be done when the temperature in the shop is 70 deg. F. or higher, since the adhesive handles better in a warmer atmosphere.

Further investigation reveals that several other large companies are using the paper stencils and that the manufacturer is expanding his organization to provide national distribution through regional representatives. It is said that fleet operators with eight or more trucks can effect savings in lettering costs over hand painting. Largest savings, naturally, accrue to large users since price per stencil is reduced in direct ratio to the number purchased. Once a pattern is cut, it is kept in the manufacturer's file, so that subsequent orders may be produced at lower cost than the initial job, which includes a charge for cutting the pattern.

END

(Please retume your reading on P. 41)



PLAN THIS BUILDING TO FIT YOUR NEEDS—

WE WILL DELIVER IT IN ONE PACKAGE!

Engineered units of standardized dimensions, prefabricated at the factory, now make it possible for you to plan in advance the type and size of structure you want.

PIONEER

PRE-INSULATED STEEL BUILDINGS

DESIGNED AND MANUFACTURED BY BLAW-KNOX CO.

Can be erected quickly with simple tools on any type of foundation. Weatherproof, vermin-proof, fire resistant and insulated for temperature control. Height, length, width, door and window arrangements to suit your requirements. All material, fastenings, glass and putty, included. Interior finished with aluminum paint. From your specifications we can quote a *delivered* price that you can bank on to the penny. *For full information and illustrations write today for Bulletin 2205.*

SPECIFICATIONS

WALLS

Welded structural frame covered with galvanized copper bearing steel sheets over ½" damp-proofed insulation board. Panels are furnished in 8 ft. widths solid; one and two window panels and entrance door panel. Heights — 8, 10 and 12 ft.

ROOF

Clear-span design, with widths up to 40 ft. in multiples of 4 ft. Structural steel bowstring trusses set on 8 ft. centers for solid support at low expense. Box-type purlins are set on 3 ft. centers on these trusses. Galvanized, copper bearing steel roof sheets and ½" insulation board placed over and fastened to purlins.

DOORS

Weather-stripped sliding doors in widths of 4, 6, 8 or 12 ft., with heights of 8, 10 or 12 ft. Track and hangers insure trouble-proof operation.

IDEAL FOR

COMMERCIAL GARAGES
MANUFACTURING
WAREHOUSES
AIRPORT BUILDINGS
ROADSIDE MARKETS
AND STORES
LIVE STOCK AND
DAIRY BARNS
POULTRY HOUSES
HAY AND GRAIN STORAGE
AND CURING PLANTS
TOBACCO STORAGE
AMUSEMENT PARKS, etc.

THE PIONEER COMPANY

1050 CENTURY BLDG. • PITTSBURGH 22, PA.

REBUILDERS' GUARANTEE

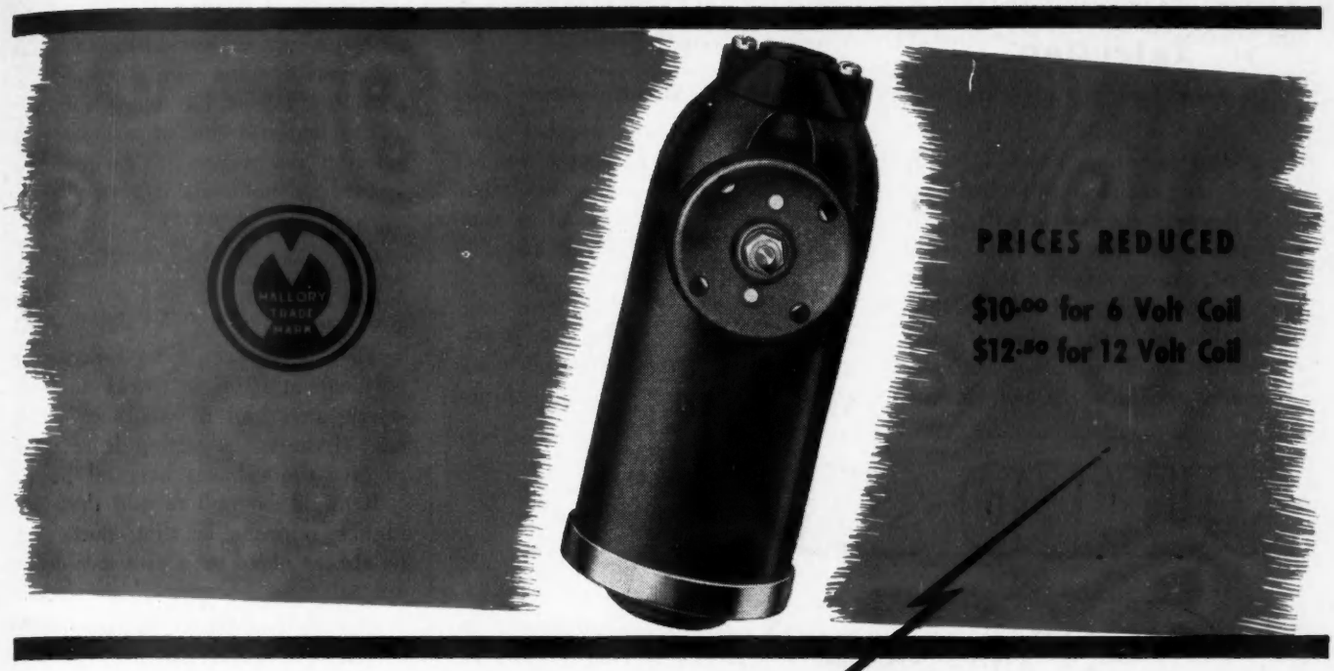
At a special business meeting of the executive committee of the Automotive Parts Rebuilders Association held recently in St. Louis, ways of assisting rebuilders to improve the quality of their product, with the establishment of minimum standards of quality were considered.

A standard guarantee of service on rebuilt units equivalent to a new unit, with a minimum of 1000 miles or 30 days service was adopted.

● WHERE'S HOMER?

(Answer . . . To Question on P. 120)

It was International Harvester's 100th anniversary, and a crowd of 73,000 jammed Chicago's Soldier Field, visited the 8-acre exhibit, and took in Harvester's show of motor trucks, farm equipment, and industrial power equipment.



THE GENUINE *Mallory* MASTER COIL

OVERCOMES NORMAL SPARK LOSS • IS COMPLETELY WATERPROOF • IS OIL SEALED AND AGE-PROOF

The Mallory Master Coil—for either 6 volt or 12 volt systems—is something brand new in a waterproof, long-lived ignition coil.

Its water-proof design is a novel Mallory development. The coils are housed in bakelite and the windings are completely sealed in a special transformer oil to eliminate short circuits or breakdowns. The wire leading to the distributor is also sealed in to make this coil absolutely water-proof. To support this claim the Mallory Coil can be completely submerged in water with the engine continuing to run.

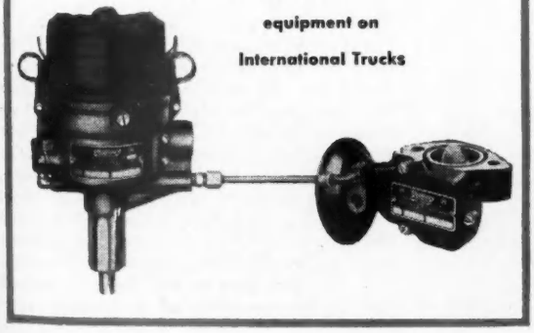
The Mallory Master Coils will deliver more energy than ordinary coils so that a hotter spark is produced; hence with a Mallory Master Coil, the engine will always start easily, even when the battery is low in cold weather. Extreme dependability and superior performance are further assured because of the water-proof housing of the Mallory Master Coils.

Our reputation among fleet operators for building dependable and efficient coils, condensers, and distributors, is enviable and has been gained through years of satisfactory service.

DISTRIBUTION OF MALLORY PRODUCTS for Sales and Service May Be Open in Your Territory. Write us for full details.

THE NEW MALLORY DISTRIBUTOR—GOVERNOR IS NOW STANDARD ON

American Aerocoach
Autocar Federal Trucks
and now is optional
equipment on
International Trucks



MALLORY ELECTRIC CORPORATION
Manufacturers of Automotive Electrical Devices
DETROIT 4, MICHIGAN

Anti-Detonant Injection

(CONTINUED FROM PAGE 100)

2 per cent in torque which is easily noticed on vehicles with little reserve power for acceleration. Where this additional power is not needed the spark can be retarded to produce the same power as without injection. When this is done, a three to five octane number drop in the engine requirement occurs which can save approximately one third of the anti-detonant injected.

Cost of Anti-Detonant

WHERE 60 octane number gasoline is used, a 15 octane number gain is needed from the anti-detonant solution to reach the prevailing commercial requirement. From Fig. 2 it can be seen that an 11.5 per cent maximum rate or 2.87 per cent overall rate will be required for heavy-duty vehicles. The principal material cost of the anti-detonant solution will be alcohol. The other material costs per gallon are estimated to be 0.2 cents for the inhibitor and 0.6 cents for 3 cc of tetraethyl lead.

The material cost of anti-detonant solution per gallon of gasoline for several alcohol costs is given below:

Alcohol cost per gal.	**$.20**	**.30**	**.40**
Anti - Detonant cost per gal. of gasoline	**.0053**	**.0079**	**.0104**

These costs would be reduced by 40 per cent for light trucks and passenger cars and by another 33 per cent if the spark setting is retarded to give the vehicles original power.

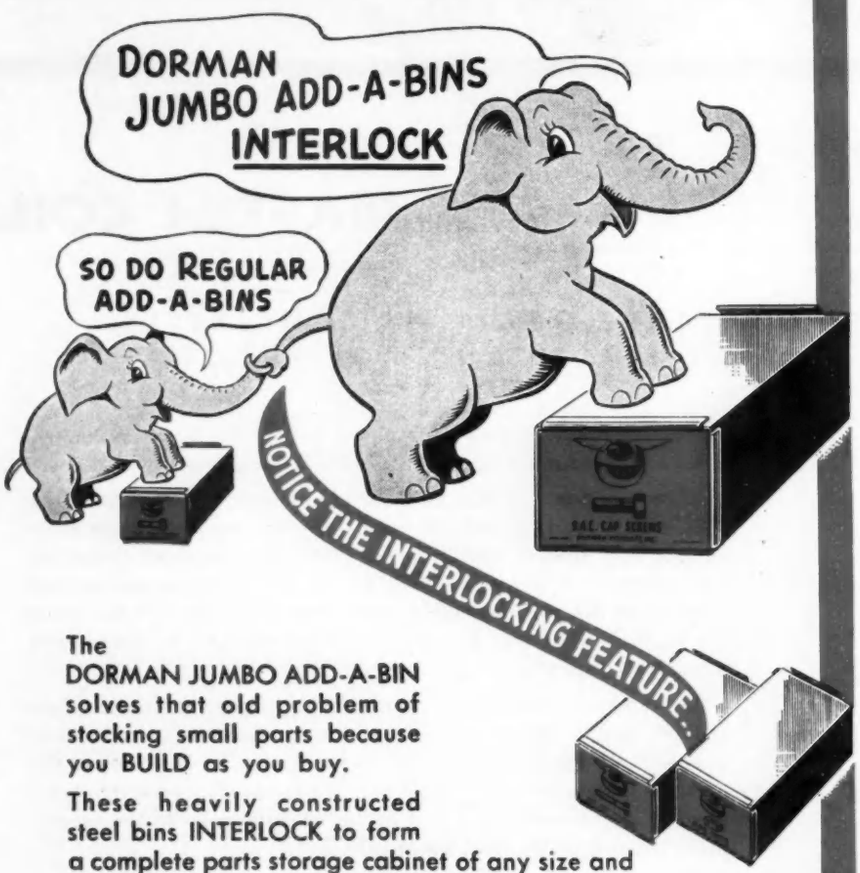
It might be well to add that it is highly improbable that fleets will be able to blend their own anti-detonant mixtures because of the hazard in handling concentrated tetraethyl lead.

Wear and Corrosion

WHEN liquid water impinges on a cylinder wall during engine operation, wear is increased. The Vita-Meter prevents wear of this type by its design and operation. First, the aclohol-water solution is aerated by an air-bleed in the device and then completely atomized as it is introduced. Secondly, the solution is put in only at or near full throttle when sufficient combustion chamber heat is available to complete the evaporation. When vavorized, the water injected is no more harmful than the much larger amount resulting from the combustion of the gasoline itself.

(TURN TO PAGE 126, PLEASE)

JUMBO SAYS...



The DORMAN JUMBO ADD-A-BIN solves that old problem of stocking small parts because you BUILD as you buy.

These heavily constructed steel bins INTERLOCK to form a complete parts storage cabinet of any size and any shape.

With over 400 Dorman Products now available in JUMBO ADD-A-BINS you'll find that needed part at your finger tip. When you buy DORMAN PRODUCTS you get this 6½" x 3⅞" x 3¼" Bin, which is now available from your Automotive Parts Wholesaler As JUMBO says:

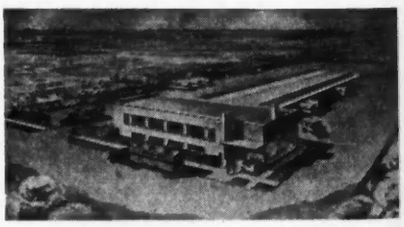
"THEY INTERLOCK!"

The Quality Line That's Easy to Find

DORMAN PRODUCTS

DORMAN PRODUCTS Inc.
CINCINNATI, OHIO

P.I.E. Chicago Teminal



This new terminal being erected for Pacific Intermountain Express at Chicago by The Austin Co., Engineers and Builders, will enable the line to double the volume of freight now handled in its smaller rented terminal. Dock space for simultaneous handling of 56 trucks is being provided in the structure, which will have an all-welded steel frame and buff face brick throughout the exterior. The one-story and basement office building, facing S. Western Ave. at 36th Street, has been designed for future erection of a second story

LUBE MEMO

Easy way to end sticky valve trouble

Sticky gum on our valves

Ex. valve on #1 isn't closing — loss of compression and power.

Nelson brags RPM DELO Oil keeps his valves clean as a whistle.

Nelson says compounds in RPM DELO Diesel Engine Lubricating Oil keeps valves free 3 ways:

1. Anti-oxidant stops gum formation
2. Metal adherent keeps oil film on stem — prevents wear.
3. Detergent cleans away carbon deposits.

Mon. — lube change due — get RPM DELO oil

STANDARD OF CALIFORNIA • San Francisco, Calif.
THE CALIFORNIA COMPANY • Denver, Colo.
THE CALIFORNIA OIL COMPANY • New York
STANDARD OF TEXAS • El Paso, Texas

Anti-Detonant Injection

(CONTINUED FROM PAGE 124)

A previous difficulty with the use of alcohol-water solutions was their tendency to corrode the common metals used for tanks and injector parts. This drawback was overcome by the discovery of an inhibitor which prevented both corrosion and plugging difficulties from impurities in alcohols.

Straight-Run Gasolines

BECAUSE anti-detonant injection can, in effect, add 30 octane numbers or more to the gasoline used, it becomes feasible to use it with 60 octane high burning quality straight-run, lead-free gasoline in vehicles now operating on housebrand fuel.

The gains in maintenance economies listed at the beginning of this article are due to two things. The first is the superior volatility and burning quality of the proper straight-run gasoline in present day engine design and the second is the nearly total absence of engine deposits.

. . . Burn Cleaner

DISCOVERY of the importance of gurning quality in a gasoline has come from research work going on continuously in the refining industry. With the discovery, rapid progress is being made in the burning quality of all gasolines. Gases with highest burning quality have a higher hydrogen-carbon ratio than stocks containing appreciable percentages of aromatics and olefins. Fuels of this higher hydrogen content burn with a clean, blue flame. Some thermally and catalytically cracked gasolines burn with a yellow flame generally indicative of incomplete combustion. Comparative tests in engines show that high burning quality gasolines give cleaner combustion over a much wider range of fuel-air ratios and combustion chamber temperatures than do most commercial gasolines. This was determined by visual observation of combustion in an engine of current design by smoke-meter readings on exhaust gas and by road tests in cars running to simulate actual service operation.

In a test run under conditions designed to emphasize combustion behaviour and under very severe "stop and go" service, the poor burning gasoline gave twice the wear, twice the increase in oil consumption fouled spark plugs, badly varnished pistons and cam followers, nearly complete blocking of the oil pump

(TURN TO PAGE 130, PLEASE)

DRIVE OFF THE ENEMIES OF HEALTH and EFFICIENCY

AMAZING NEW

amOZONer

Freshens the Air in Garages • Repair Shops • Motor Testing Rooms

Here's the scientific way to protect the health, happiness and efficiency of men working around internal combustion engines in enclosed places. Because the new "amOZONer" produces and circulates ozone in the atmosphere, it helps to prevent headaches, dizziness, drowsiness, nausea and other ill effects frequently suffered by mechanics and garage attendants in cold weather when windows are closed—Fewer drafts—Save heat and fuel. Installed 7 feet off the ground, it will clear the atmosphere up to 6,000 square feet of floor space.

Simple in Construction—Easy to Clean (Less than 10 minutes)
Average Cleaning Required *Only 3 Times a Year*

The "amOZONer" can be secured through leading automotive wholesalers

AMERICAN ASSOCIATES, INC.
AUTOMOTIVE PRODUCTS DIVISION
PROVIDENCE 3, R. I.

NATIONAL SALES OFFICE
1728-30 FAIRMOUNT AVENUE
PHILADELPHIA 30, PA.

5 Million Pounds

Two Fruehauf Refrigerator Vans, equipped with mechanical refrigerating units, hauled 5 million pounds of fresh meat products during the past year without a single spoilage claim, for Western Refrigerator Lines of Oklahoma City. Western Refrigerator Lines hauls for Armour & Company over a radius of 600 miles out of Oklahoma City to points in Oklahoma, Arkansas, Texas, New Mexico and Tennessee

RAYBESTOS PGT LINE

★ **Specifically designed for your make and model of truck**
★ **Specifically designed for service duty requirements**
★ **Right combination all seven different friction materials**
★ ***Full-range* brake control**
★ **Factory-matched sets, packaged, identified—for quick installation**
★ **Proving Ground Tested for long life, steady performance**
★ **Fewer adjustments necessary**
★ **Available in drilled and countersunk sets, or in Ray-BOND for use with bonding equipment.**

★ Brake lining specifically engineered for lighter trucks, for the stop-and-go driving of service industries—*in sets,* drilled and countersunk, for easy installation and lower reline cost!

Based on the fact that no one type of brake lining is right for all vehicles, Raybestos developed seven different brake materials for passenger cars, plus numerous brake blocks for heavy-duty trucks and buses. Now, Raybestos turns to the in-between field —the light-weight trucks too heavy for car lining, too light for heavy-duty blocks.

Raybestos PGT brake lining sets for service-duty trucks are the result. Available now, these PGT sets give your service trucks all-round better braking, because they're individually engineered to meet your requirements—*more economical* brake service costs because they're factory-matched, easy-to-install.

★ ★ ★

Get in touch with your Raybestos jobber. He has the details and will give you an estimate on your complete brake-maintenance program.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., **Bridgeport, Connecticut**

Proving Ground Tested BRAKE LINING • BRAKE BLOCKS • CLUTCH FACINGS • FAN BELTS • HOSE for Cars, Trucks, Buses and Tractors

Raybestos

AMERICA'S BIGGEST SELLING BRAKE LINING

RAYBESTOS-MANHATTAN, INC.

★ **SERVICE INDUSTRIES:** Truck fleets of bakeries, florists, fuel dealers, contractors, dairies, department stores, utilities, laundries, cleaners, grocers, local manufacturers, etc.

Anti-Detonant Injection

(CONTINUED FROM PAGE 126)

inlet screen, and large sludge deposits throughout the engine in only 6,000 miles. The high burning quality gasoline in identical vehicles run simultaneously gave no plug fouling, no lacquering, no screen blocking and no sooty, sludge deposits whatever.

It is emphasized that these tests were made with present day standard engine types. To be sure, engines could be redesigned to take best advantage of almost any type of fuel, but such complete redesign of present day engines would be economically out of the question.

Less Sludging

THESE superior burning qualities of the straight run gasoline in combination with anti-detonant injection are important from the standpoint of sludge. The more complete the combustion is, the less soot and other thermal decomposition products are formed in the combustion chamber. It has been found that when these deposits are present they readily find their way into the crankcase and other parts of the lubrication system where they accumulate as the black, mayonnaise-like sludge found blocking inlet screens, filling oil control ring slots and covering valve springs.

Less Valve Troubles

HIGH-BURNING quality gasoline does not produce the type of intake-valve burning that plagued many truck fleets the last two winters. (See Fig. 3.) It does not form deposits in the intake manifold which reduce volumetric efficiency and power.

Straight-run gasoline also contains essentially no gum and in addition it does not form gum during storage. Valve sticking from gasoline gum is a constantly recurring problem in engines operated at an average output low enough so that the life of other engine components is not limiting.

Sweetened, straight-run stocks have the least and most pleasant odor of any gasolines. This feature is important in food delivery service.

Furthermore, straight-run gasoline either contains extremely little sulfur

(TURN TO PAGE 132, PLEASE)

1912 • 1948

MR. SERVIS RECORDER,

this year, makes his 36th Bow

"Helping to keep trucks busy, for 36 years"—we take pride in that long and successful record. For private fleets, contract haulers and motor freight lines, everywhere, the little SERVIS RECORDER up in the cab has been "writing" its daily work chart. This chart shows every minute when the truck was busy working and when it was standing idle, all day long. It's a versatile little instrument—helpful in other trucking troubles, too—

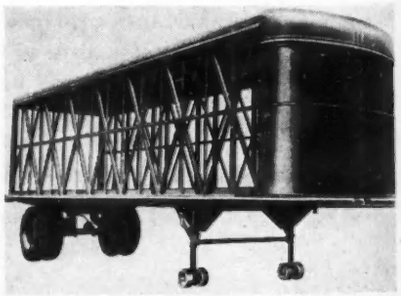
Driver Morale
Better Routing
Overtime Problems
Speeding, Accidents
Insurance Reduction

In fact, we've gotten out a fine illustrated 16-page booklet all about its ten great services. Write for it. The Service Recorder Co., 1375 Euclid Avenue, Cleveland 15, Ohio.

The Servis Recorder

Tells Every Move Your Truck Makes

Frameless Van



The new Dorsey lightweight, frameless Fleet Chief DeLuxe Van embodies many new construction features. Specially designed top and bottom rub rails materially increases the rigidity of the body. These sections together with lightweight steel crossmembers X.U.X construction in the sides produce a lightweight rugged van body. Dorsey Trailer reports the elimination of most parts requiring frequent servicing and lubrication greatly reducing break-downs and thereby, avoiding much maintenance expense

She has to take chances

. . . YOU CAN PLAY SAFE!

Here's the way to take the risk out of piston ring jobs in trucks and buses: *Install Koppers American Hammered Piston Rings!* And be sure to take advantage of the fact that now American Hammered Porous Chrome* rings are available for most truck and bus engines. These rings have already established spectacular mileage records—delivered full efficiency during every record-breaking mile in millions of miles of the toughest kind of service. They reduce cylinder wear by half . . . increase piston ring life four and *even five* times. Ask your American Hammered jobber for Porous Chrome piston ring sets. Koppers Company, Inc., Piston Ring Division, Box 626, Baltimore 3, Md.

*VAN DER HORST PROCESS

K
KOPPERS

American Hammered Piston Rings

IN EVERY SIZE • OF EVERY TYPE • FOR EVERY PURPOSE

Anti-Detonant Injection

(CONTINUED FROM PAGE 130)

(0.03) or the sulfur that it does contain can be stripped out with a simple, low-cost refinery operation. Excessive sulfur in fuel has been proved to increase diesel engine wear and it may contribute to gasoline engine warm-up corrosion and wear.

Maintenance Savings

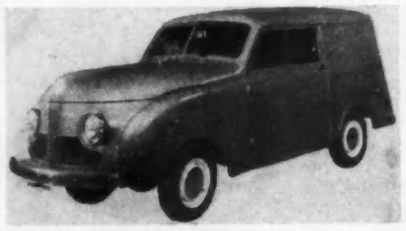
MAINTENANCE gains which will have accrued to two fleet users from the use of high burning quality gasoline are shown in Fig. 6 and 7. Based on our test work, we anticipate the saving of about $100 per vehicle, per year, to commercial fleets using the new system of combustion. The actual amount saved will depend on the type of vehicle, the type of service and the quality of mechanical maintenance provided. Where heavy-duty fleets require frequent engine overhaul due to high wear and large sludge deposits, and where the same vehicles are subject to both delivery and heavy duty service, high burning quality gasoline with anti-detonant injection can be the difference between a profit and a loss for the business operating its own delivery fleet. Minimizing maintenance difficulties has the large additional value of freeing management from problems not involved in their major business objectives.

High Compression Engines

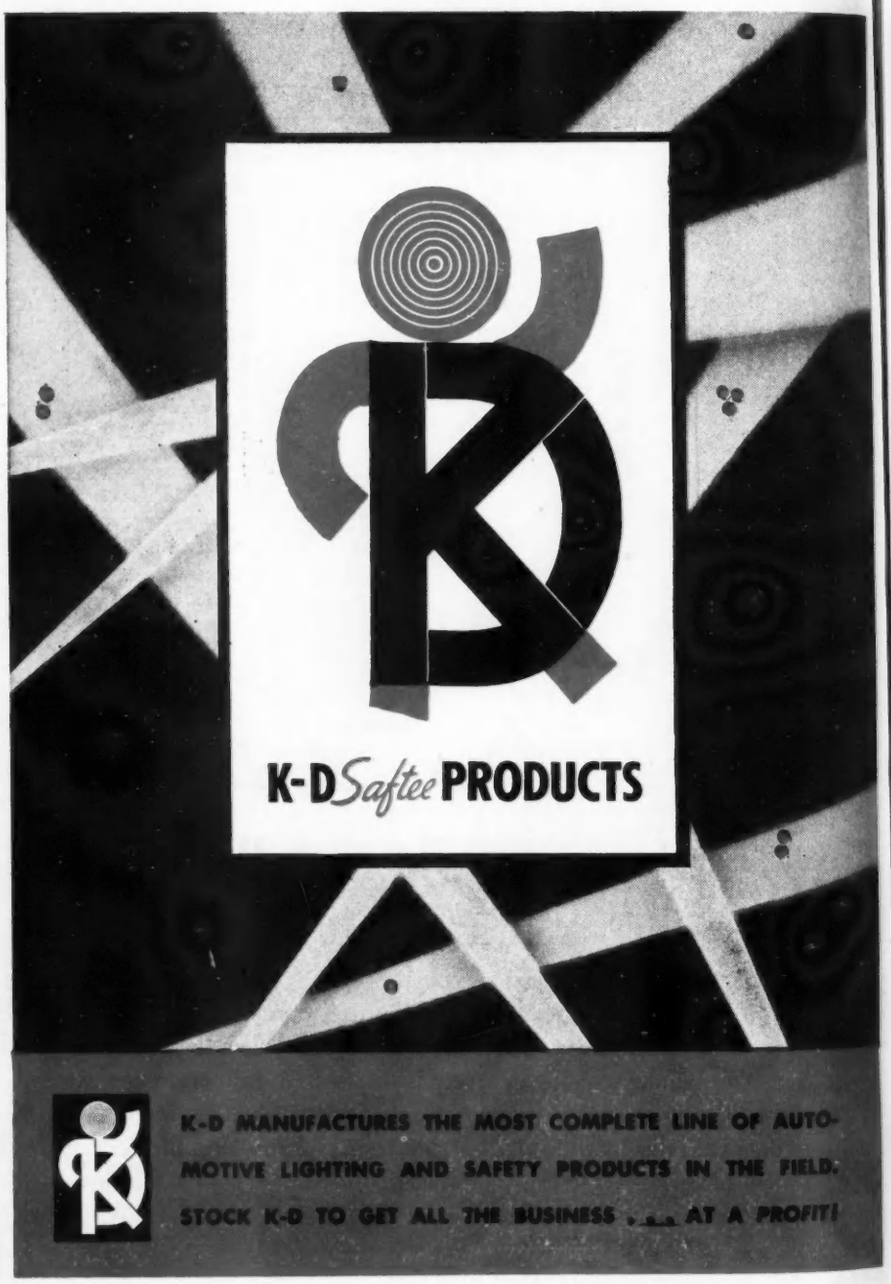
THUS far the discussion has centered on improved performance which may be expected through the use of anti-detonant injection in present-day engines. But there is another important and entirely separate aspect pertaining to use of the injection system with ultra-high compression engines.

New experimental vehicles having engines with higher than 12 to 1 compression ratio require gasoline of at least 90 A.S.T.M., 100 Research octane number. Injections of alcohol-water base solutions will add 20 octane numbers or more to the gasoline used in such high-compression ratio engines and this increment applied to present-day premium gasolines of 83 A.S.T.M., 90 Research octane numbers will more than satisfy these anti-knock quality requirements. This was determined by testing in three high compression ratio gasoline engines and additional work is in progress.

This is particularly advantageous to the fleet owner who may in the future find it advantageous to start a high-compression program with only a few units. Instead of having to set up entirely separate fuel supplies for these vehicles, the operator will be able to step up his regular gasoline supply by means of injection.



Crosley's new panel delivery unveiled Nov. 17, is on standard chassis featuring the 59-lb, 4-cyl "Cobra" engine. Inside body dimensions are: 45 in. wide, 38 in. high, 46 in. long


K-D Saftee PRODUCTS
K-D MANUFACTURES THE MOST COMPLETE LINE OF AUTOMOTIVE LIGHTING AND SAFETY PRODUCTS IN THE FIELD.
STOCK K-D TO GET ALL THE BUSINESS . . . AT A PROFIT!

Anti-Detonant Fluids

In the past, octane number improvers have had to be soluble in gasoline, but now the field is opened to materials soluble in an alcohol-water solution. The economy of using anti-detonant only when needed makes feasible the use of organic compounds which allow a proportionate reduction in the alcohol concentration or increase in the effect of the solution.

But the supply is critical. Where a commercial vehicle uses 20 gallons of gasoline a day, 0.6 gallons of 85-15 alcohol-water-lead solution and therefore 0.51 gallons of alcohol will be required per day. One million commercial vehicles would need approximately 150 million gallons of alcohol per year. This is one half of the total alcohol production capacity of the country before the war, and passenger car consumption would require additional amounts.

Whenever alcohol can be delivered to the customer at 40c. or less per gallon, the cost of obtaining anti-knock quality with alcohol solutions is competitive with refinery methods.

Surplus farm products could be used as a raw material for the production of alcohol. But this source of supply would be subject to large variation in cost of raw materials. This variation would be caused by the different crop yields from year to year and by parity price changes set by the Federal Government. On the other hand, synthetic alcohol can be produced chiefly from petroleum at costs bearing a more definite relationship to gasoline. Methyl or isopropyl alcohol will avoid the necessity for tax permits. Consequently, it appears logical that the opportunity to supply this new large market should be grasped by those currently producing synthetic alcohol, including members of the petroleum industry. When and if alcohol from farm products can compete with synthetic materials, it could then be utilized for anti-detonant purposes.

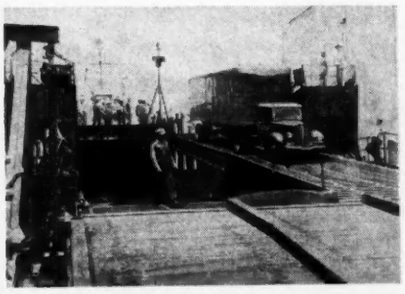
The amount of alcohol supplied to consumer users at 40c. per gallon or less will be a limitation on the sale of high burning quality gasoline to fleet operators. It is important that this alcohol supply be coordinated with the production of Vita-Meters and the sales efforts of oil companies.

END

(Please resume your reading on P. 49)

NEW!
K-D
Introduces
Really NEW
SEALED-BEAM
FOG
LAMPS
Long a leader in the field of safety lighting products, and safety equipment for the automotive, farm and construction vehicle industries, K-D is in full scale production with really new, sales-wise, Sealed-Beam fog lamps.
These lamps are the results of K-D's long manufacturing experience and extensive research in this field. Now you can honestly offer fog lamps featuring maximum efficiency and longer life with CAR-OF-TOMORROW STYLING, and designed to fit any car on the road. That adds up to volume, and volume profits! You'll welcome this new addition to the K-D line... get behind it for added profits, easier sales.
NEW WATCHCASE DESIGN FITS ANY TYPE CAR
MODEL NO. 890
K-D "DELUXE"
FOG LAMP
Modern design. 5½" diameter Sealed-Beam unit. Adjustable head. Bumper-bar clamp with theft-proof washer. Rubber grommets prevent gravel pan rattle. Easy to replace Sealed-Beam unit.
MODEL NO. 891
K-D "JUNIOR"
FOG LAMP
4⅜" Diameter Sealed-Beam unit. Ball joint makes it easy to aim lamp. Bumper-bar clamp for quick installation. Vibration-proof grommets for top and underside of gravel pan. Easy to replace Sealed-Beam unit.
• CLEAR OR AMBER • CHROMIUM PLATE FINISH •
• FITS SMALL SPACE BETWEEN BUMPER AND GRILL ON MODERN CARS •
• RUGGEDLY BUILT • MAXIMUM LIGHTING EFFICIENCY •
The Best in Automotive Safety Products
THE K-D LAMP DIVISION
NOMA ELECTRIC CORPORATION
1910 Elm Street Cincinnati, Ohio

Special Delivery—Trailer



Trailerships, Inc. of New York City, have inaugurated a regular over-nite service for shipping fully loaded trailers via the Hudson River from New York City to Albany. The ships are converted from LST's #969 and #970 by the Sun Shipbuilding and Dry Dock Co. at Chester Pa. Although the 150-mile trip will average 11 hours, the savings to truckers is estimated at between $12.00 to $15.00 per trip. The ships will dock in time to meet early morning delivery schedules, it is stated by officials of Trailerships, Inc.

Fords for '48

(CONTINUED FROM PAGE 79)

rear drums are composite on the F-7, cast iron on the F-8. An inspection hole is provided for feeler gage check. Vacuum power braking is standard on both models using a fully-sealed piston-type unit 9½ in. in diameter. The hand brake is a spring-loaded drum type on the propeller shaft.

Steering on these models is the new worm and dual needle bearing three-tooth roller type. There is a solid-type drag link fitted with dust shields and adjustable stud, and a lock nut on the spindle arm serves as a stop.

Living Room Cab Comfort

NEW cab design and driver comfort features are common to all new models. The cabs provide up to 7 in. greater width and also more headroom. The door has been moved forward to provide better clearance when leaving and entering. Weather-proofing has been improved and the hardware is heavier. A distinguishing feature is a new three-way air control system for ventilating to provide "living room" comfort. A fresh air intake heater and defroster provides an efficient ram and blower heater to pressurize the cab for uniform heat distribution. In mild weather it reduces window fogging and is said to provide twice the usual volume of hot air to defroster vents. This is optional equipment at extra cost.

A concealed, screen protected opening just above the recessed headlight in the right front fender admits fresh air for this air conditioning equipment. However, it can be used at all times to draw fresh air into the cab in regulated volume.

Another device contributing to good ventilation is a large-sized cowl ventilator fitted with an insect screen, rubber weather seals, and water drain. In addition, ventilating wings are provided in the windows of both cab doors—as standard equipment—and these can be adjusted to scoop fresh air and expel stale air.

The standard seat cushion and back assembly is adjustable fore-and-aft 3 in. on rollers, with finger tip control. The cushion and seat back have a thick rubberized hair padding while the cushion contains individually pocketed coil springs. Supplementing the standard seat is the "Spiralounge" seat which is optional in all cab models. It is standard equipment for c-o-e jobs. This is an individual seat floating on a variable-rate spiral coil spring adjustable to the driver's weight. A shock absorber of hydraulic type controls the movement of the seat and back.

Another feature contributing to driver comfort is the new "level action" cab suspension system, designed to insulate the cab from frame weave. It is a four-point suspension with rubber pads and rubber insulated bolts at each front corner, and level action links operating in torsion type rubber bushings at the rear corners.

On c-o-e's, Ford provides a lift-up hood and a new location of the dash for easier servicing. The engine cover is fitted in the cab floor, with an exceptionally low height when the six-cylinder engine is used. The cab

(TURN TO PAGE 136, PLEASE)

A Sales Builder

INCREASES PROFITS · BUILDS GOODWILL

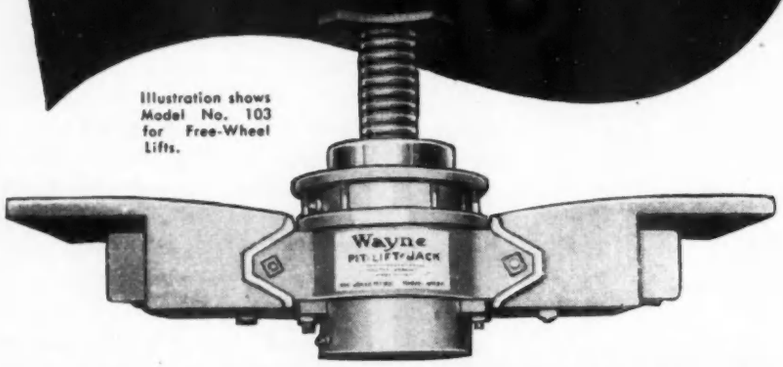
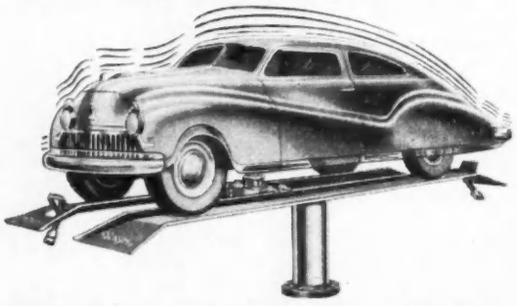


Illustration shows Model No. 103 for Free-Wheel Lifts.

THE WAYNE PIT LIFT JACK

IMPROVES lubrication service on all types of lifts or pits. Designed for lifting and oscillating car bodies. Saves time and money in tire and wheel service. Made in four types to fit hoists or pits of any design. Write today for bulletin.



When equipped with the Wayne Oscillating Valve, the Pit Lift Jack automatically oscillates car on lift or pit, assuring better penetration of lubricant, making it easy to discover squeaks or broken parts.

for your protection

THE WAYNE PUMP COMPANY
FORT WAYNE 4, INDIANA

PUMPS • COMPRESSORS • AIR SCALES • HOSE REELS • CAR WASHERS • LIFTS

HERE is a better Piston

Announcing A SEALED POWER SLEEVE ASSEMBLY FOR CUMMINS DIESEL FEATURING THE NEW FORGED ALUMINUM PISTON

As compared with a cast aluminum piston of the same alloy, this new Sealed Power LO-EX* Alloy FORGED ALUMINUM PISTON has:

37% greater tensile strength

and it has 39% greater yield strength

and it has 16 times greater elongation strength—for longer life

and it has 15% greater thermal conductivity —for cooler operation

and it has 60% better fatigue (flexing) strength

Blowholes, porosity and shrinks, all of which can detract from the factor of strength and quality in any piston casting, cannot occur in Sealed Power Forged Aluminum Pistons, due to the method of fabrication.

For maximum performance insist on SEALED POWER SLEEVE ASSEMBLIES FEATURING LO-EX ALLOY FORGED ALUMINUM PISTONS FOR CUMMINS DIESEL ENGINES.

*A trademark for pistons cast and alloys produced exclusively by The Aluminum Co. of America.

SEALED POWER CORPORATION

MUSKEGON, MICHIGAN • IN CANADA: STRATFORD, ONTARIO

Fords for '48

(CONTINUED FROM PAGE 134)

support is of new design, featuring a rigid sub-frame.

The "New Look"

FORD'S new styling, carried in a similar vein throughout the line, is apparent in the accompanying photographs and is highlighted by the new recessed radiator grille and headlights which contribute to massive appearance and give added protection.

Greater front-end strength has been achieved through improved sheet-metal suspension and heavier construction. Fenders are heavier, wider and of a new design which provides greater tire clearance. Another design advancement is a heavy channel-steel front bumper attached directly to extended frame side rails. The bumper is, in effect, an extra cross member providing greater rigidity and impact strength.

Chassis Improvements

CHASSIS improvements on the light and heavy-duty lines may be briefly summarized as follows: On Series F-1, F-2, and F-3 brake drums are of composite type designed to be quickly demountable. Front axles are redesigned to accommodate the new truck type fore-and-aft steering linkage and direct-acting shock absorbers. The steering arrangement is said to provide greater stability and better geometry. The drag link is short, direct-acting, and of solid type attached to the new demountable steering arm. Tie-rod ends are spring-loaded ball-socket type for automatic take-up of wear, fitted with dust shields.

Body Models

The nominally rated ½-ton series is offered in a deluxe delivery model, and with standard pick-up, panel, stake, and platform bodies. The ¾-ton regular and heavy duty series offers stake, platform, and express bodies, while the 1-ton series offers a stake and platform body and either single or dual rear tires.

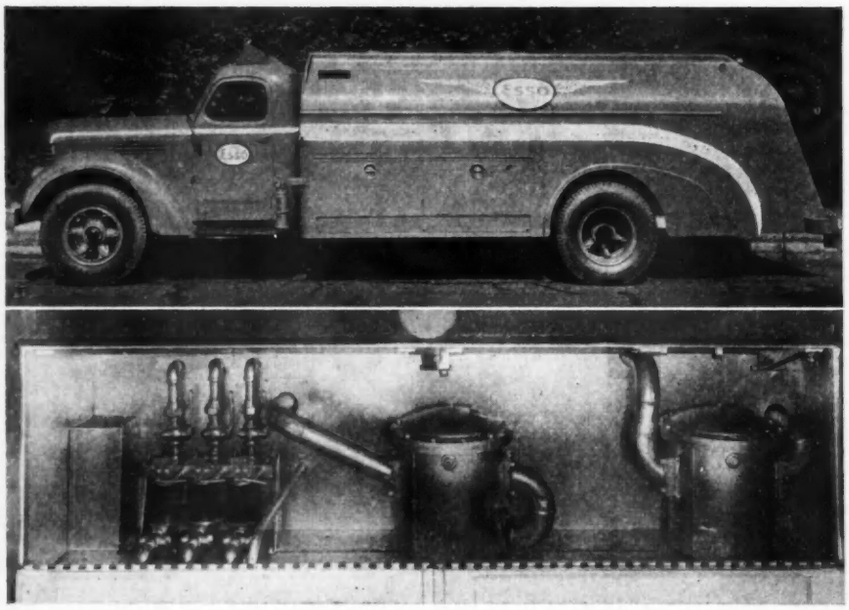
END

(Please resume your reading on P. 81)

ZIMMERMAN TO SAFETY POST

Charles W. Zimmerman, undefeated Rodeo driver champion in the semi-trailer class, has accepted appointment as assistant director of safety and personnel for the Cushman Motor Delivery Co., Chicago, for whom he has driven for many years.

ESSO AVIATION REFUELER
Has S&J Safety Equipment



Petroleum marketers who supply fuel to private, commercial and military planes take every precaution to keep their fuel free from water and sediment. Many of them equip their aviation refuelers with S. & J. Internal Hydraulic Safety Valves which immediately stop the flow of liquid in the event of fire while unloading, or through accident on the highways. The S. & J. system also employs a water drain safety valve and a water level indicator. It is very efficient in operation because of the clarity of the principles involved. May we send you complete details of the S. & J. Safety System for Aviation Refuelers?

SHAND & JURS CO.
BERKELEY, CALIFORNIA
NEW YORK CHICAGO HOUSTON LOS ANGELES SEATTLE

SHAND & JURS

TRUE OR FALSE?

A GALLON OF GASOLINE COSTS LESS THAN A GALLON OF DISTILLED WATER.

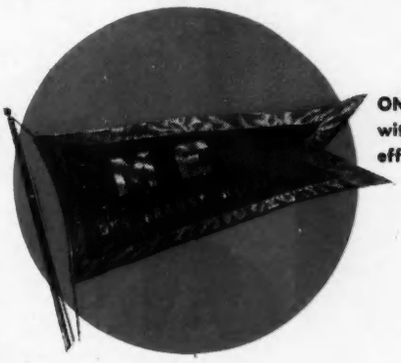
☐ TRUE ☐ FALSE

Answer on page 138

AGAIN

For the 17th Consecutive Time Blackhawk Predominates Among the Winners of the Annual Bus Maintenance Award

ONLY BLACKHAWK HYDRAULIC JACKS carry this seal . . . your assurance of DEPENDABILITY



ONLY Bus Maintenance shops with outstanding records of efficiency merit this award

With sensational regularity every year since the award was originated in 1930, an overwhelming majority of the Bus Maintenance Award winners use Blackhawk Hydraulic Jacks. This coveted award is given each year to a few select shops having a very high efficiency record. It is won only by smart shop management... and good equipment just naturally goes hand-in-hand with their leadership. Their buying habits on Blackhawk are one more dramatic testimonial on why you, too, should always buy the best — buy a Blackhawk from your Blackhawk Jobber.

A Product of **BLACKHAWK MFG. CO.,** Dept. J1118, Milwaukee 1, Wis.

BLACKHAWK

with an

THE MASTER OF FLAME
ANSUL
*REG. U.S. PAT. OFF.
FIRE EXTINGUISHING EQUIPMENT

DRY CHEMICAL
FIRE
EXTINGUISHER
4

the small extinguisher with the
MIGHTY PUNCH

OIL BURNER FIRE

MOTOR FIRE

AUTO FIRE

Here is the fire extinguisher that gives you more protection against fire damage than any other extinguisher of comparable size . . . because it STOPS FIRE FASTER.

Its MIGHTY PUNCH means the average person can use the ANSUL 4 Fire Extinguisher effectively by merely following the simple directions.

It is safe to use in your shop, garage and auto because an ANSUL 4 Fire Extinguisher does not liberate any poisonous vapors.

STOP FIRE FASTER!

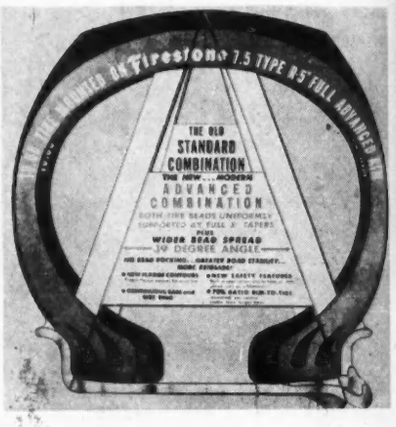
MADE BY THE MANUFACTURERS OF ANSUL DRY CHEMICAL FIRE EXTINGUISHERS, MODELS 20, 30, 150A AND 350A.

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

NEW FIRESTONE RIM

The Firestone Products Co. is now in production on a complete line of the new Full Advanced rims in all types and sizes for trucks and buses. Rims for changing over trucks having old type rim equipment are available through Firestone rim distributors, who are members of the National Wheel & Rim Association. They can be interchanged with any type of flat base rim on the same wheel, and will allow adequate dual spacing without the use of any additional rim accessories. The new rims can be obtained on new trucks if specified when the vehicle is ordered.

To familiarize tire and truck dealers and truck operators with the features of the new Advanced rims, Firestone Steel Products Co. is now making available through distributors, tire and rim cross-sections showing how the tire mounted on the new rim compares with a similar tire on a flat base rim.



The cross-sections are made up in pairs with the new tire-and-rim combination superimposed on the old assembly for comparison. They clearly show how the full 5 deg. tapered bead seat completely supports the tire beads on both sides. The increased air volume gained by the full 70 per cent rim/tire ratio, and the greater support provided the bead on the outside because of the new flange contours are also demonstrated.

The cutouts represent a complete cross-section of the tire-rim assembly drawn to actual size. Three pairs are being distributed, showing (1) the 8.25 tire mounted on the old 5.00S rim as compared with the new 6.5 Advanced rim; (2) a 9.00 tire on the former 6.00T flat base rim as against the new 7.0 Advanced rim; and (3) a 10.00 tire on the 6.00T flat base rim as compared with the 7.5 Advanced rim. The comparison clearly demonstrates how the stability of the vehicle is improved because of the greater angle of stability of the tire on the new rim. It also shows how firmly the tire beads are seated on both sides of the rim to eliminate bead rocking, a common cause of tire failure.

● TRUE OR FALSE?

(Answer . . . To Question on P. 136)

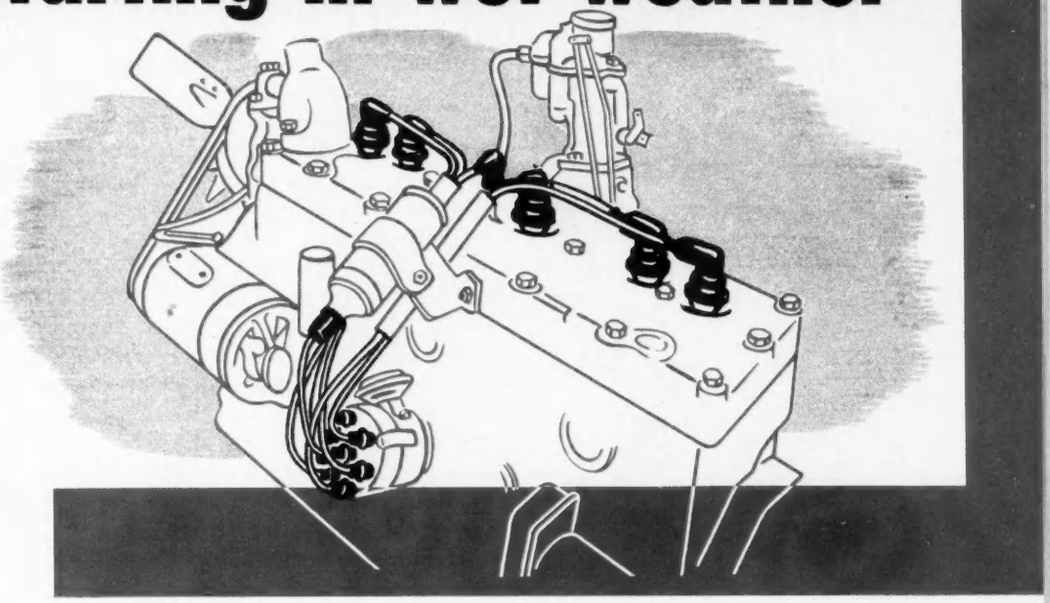
True. Distilled water costs about 25¢; gasoline (with taxes), 23¢

NEW PROTECTION
to aid starting in wet weather

Prevents ignition shorting by driving rain

Prevents engine stalling by splashes of water

Protects ignition from high humidity



It's here . . . the wet weather ignition protection you've been looking for!

It's *MōPAR Evr-Dry Shielding!* This new development by Chrysler Corporation engineers helps stop engine stalling and starting failures caused by wet spark plugs and connections. It's factory engineered and inspected for Plymouth, Dodge, De Soto and Chrysler cars and Dodge *"Job-Rated"* Trucks.

MōPAR Evr-Dry Shielding comes in easy-to-install packaged sets. Each set includes covers, mounting bases and terminals for spark plugs, and protective nipples for ignition coil and distributor cap. All parts are heat- and corrosion-resistant.

There are three reasons you and other fleet owners benefit from MōPAR Evr-Dry Shielding.

1—KEEPS SPARK PLUGS DRY

Spark plug covers and mounting bases shield plugs—keep moisture out. Nipples keep moisture from coil and distributor.

2—HELPS CONSERVE FUEL

Protection of the spark plugs and high tension connections cuts down uneven firing.

3—EASY TO INSTALL

Complete installation of MōPAR Evr-Dry Shielding takes less than an hour!

So plan now to equip your cars and trucks for quick, dependable starting in wet weather. Install MōPAR Evr-Dry Shielding. You can get this business-builder from Plymouth, Dodge, De Soto or Chrysler dealers.

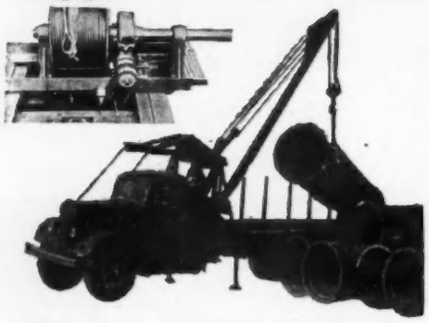
CHRYSLER CORPORATION—PARTS DIVISION—DETROIT 31, MICHIGAN

MōPAR
Evr-Dry
SHIELDING

FOR PLYMOUTH · DODGE · DE SOTO · CHRYSLER CARS · DODGE *"Job-Rated"* TRUCKS

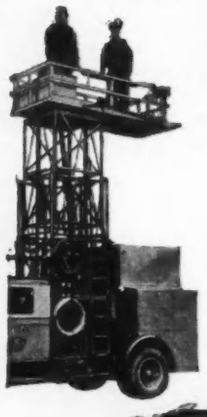
SILENT HOIST & CRANE CO.
Pioneer Mfrs. of
Truck Winch & Crane Equipment

KRANE KAR Swing Boom Mobile Cranes for materials-handling . . . lifting, transporting, positioning, gasoline or Diesel, 1¼, 2½, 5 and 10 ton capacities, 9 to 37 ft. booms (or telescopic booms), solid or pneumatic tires. Self-stabilizing without jacks or outriggers; unobstructed vision; fast, flexible, safe, easy to operate.



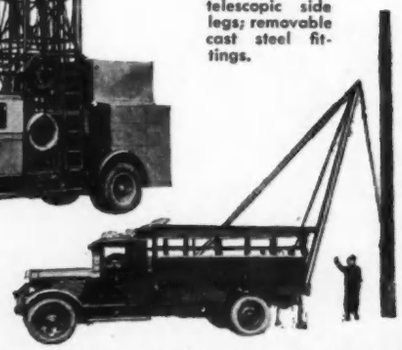
WINCHES: Capstans; Single and Double Drum, Jaw Clutch, Keyed and Friction Clutch Winches. 2,000 to 50,000 lb. Capacities.

SWING BOOM CRANES: Truck: Motor Power Operated; high capacity; takes up only a small space. For handling transformers, cable reels, lamp posts, trees, poles, manhole castings, etc. 9 to 31 ft. booms; one to 10 ton capacities.



TOWERS: 2 or 3 section type and Pantograph types, with plain, revolving or racking platforms.

TRIPOD POLE DERRICKS: for 35 ft., 45 ft., and 60 ft. Poles; single piece or telescopic side legs; removable cast steel fittings.



USERS: AT&T; N. Y. Tel Co.; T.V.A.; Consolidated Edison Co.; W.U.; Municipalities throughout America.

WRITE FOR CATALOGS:

No. 69—KRANE KAR No. 70—Truck Equipment

THE ORIGINAL SWING BOOM MOBILE CRANE WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER

2½, 5, AND 10 TON CAPACITIES

KRANE KAR

TRADE MARK REGISTERED

SILENT HOIST & CRANE CO.

852 63rd ST., BROOKLYN 20, NEW YORK

Giant Shop

(CONTINUED FROM PAGE 37)

off the conveyor chain. The conveyor chain continues to move at all times unless purposely stopped.

Under old style methods Consolidated executed shop service at the same time that loading operations were carried out. Under this new system, they are separate operations. This is a complete departure from a practice of the company from its beginning in 1929, and also a departure from the common practice in most Western freight operations.

Therefore, it is most essential that close coordination be maintained at all times between the "merry-go-round" dock and the new "assembly line" shop. To keep the dock in full operation (i.e. have equipment to load and unload at all times), Elmer Sowers, service line general foreman, must perform preventive maintenance in minimum time, which he does with the new shop facilities.

(Editor's Note: Details of Consolidated Coordination system will be published in an early issue.)

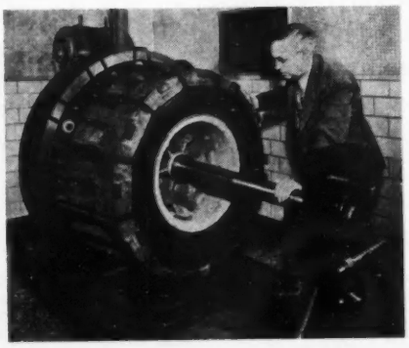
END

(Please resume your reading on P. 38)

Studebaker Price Boost

Studebaker Corporation has raised the price of its ½-ton and 1-ton models by $25 and $20 respectively. It also increased the price of passenger cars as follows: Champion line, $67.75 to $68.25; Commander line, $89 to $90.50; Land Cruiser, $100.75.

Wheel Tester



To assist in its development of lightweight aluminum wheels for trucks and trailers, Aluminum Co. of America has installed this intricate machine designed to closely approach conditions encountered in actual road service. It is claimed that aluminum wheels can reduce dead weight about 50%

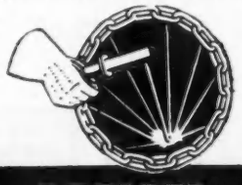
McKAY

Multi-Grip & Regular
TIRE CHAINS

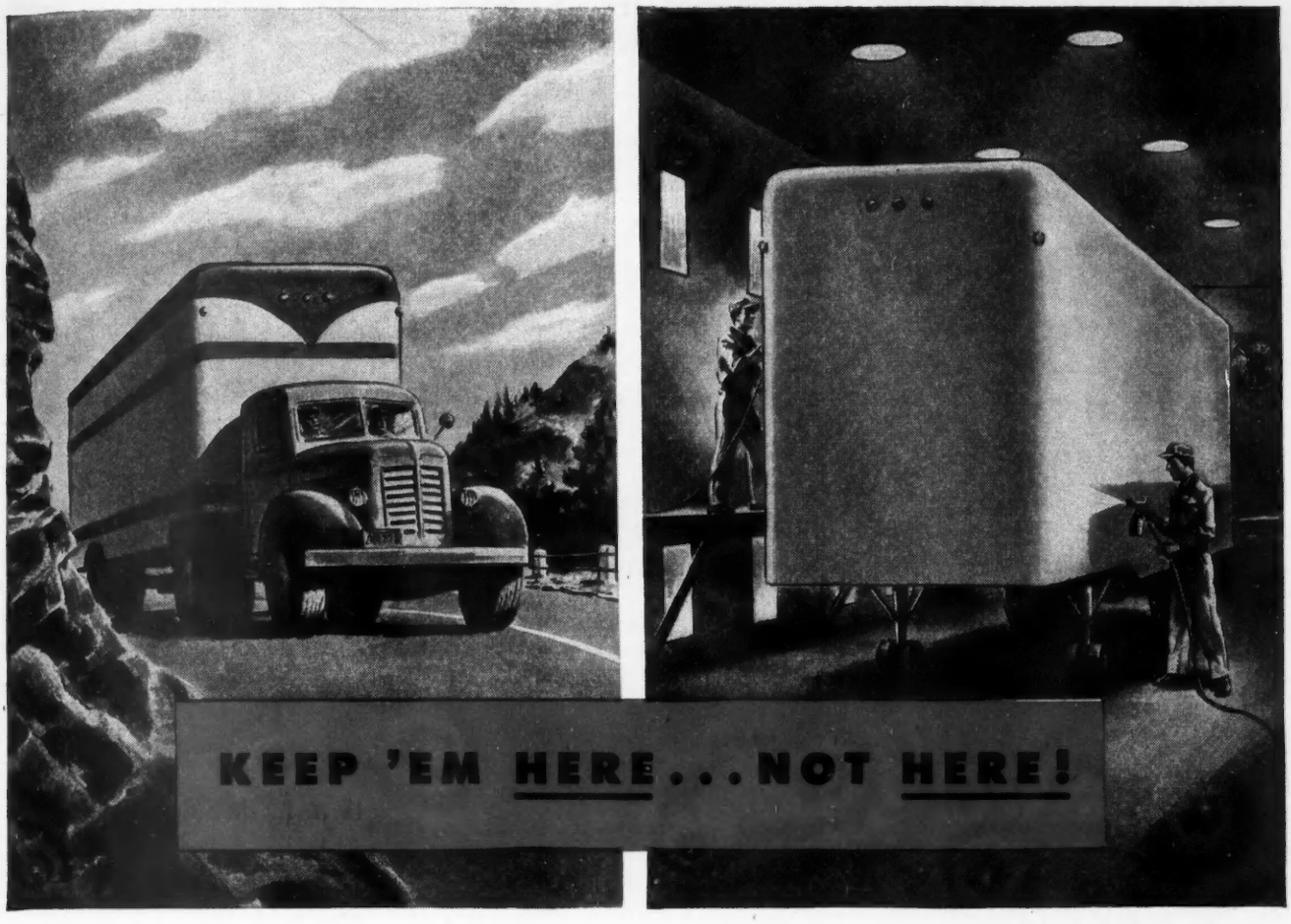
For better traction and longer wear, McKay Tire Chains are your best bet! McKay *Regulars* for normal conditions and McKay *Multi-Grips* for rugged going—both are designed to give reliable protection on hazardous winter roads.

Ask your dealer today for McKay —the *Better Tire Chains* in the "red band" bag.

Easy to Put On · Hard to Wear Out



THE McKAY COMPANY
465 McKAY BUILDING
PITTSBURGH 22, PA.



DUPONT "DULUX" gives miles of extra wear!

Bus and truck fleets earn their keep on the road, not in the paint shop. But to do this, they need a really rugged finish—which to a majority of fleet operators spells Du Pont "DULUX" Enamel!

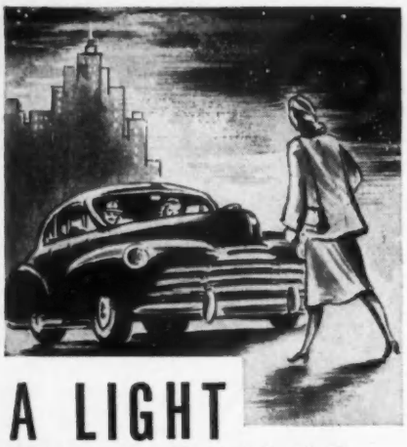
"In the shop," "DULUX" is easy to work, gives a high gloss, dries fast, requires no rubbing. "In action," "DULUX" *proves* its toughness and durability—by keeping its handsome appearance despite sun, rain, snow, ice and hard knocks.

If you're looking to trim maintenance costs by stretching the time between repaints, this is the kind of performance you *want*. Place your order today for "Dulux," the automotive enamel that's *rugged*—and better looking! E. I. du Pont de Nemours & Co. (Inc.), Refinish Sales, Wilmington 98, Delaware.

DU PONT
REG. U. S. PAT. OFF.

DULUX
Reg. U. S. Pat. Off.
AUTOMOTIVE ENAMEL

BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY



A LIGHT THAT FAILED

OFTEN CAUSED by FAULTY SWITCHES

BE SAFE! BE SURE!

Use COLE-HERSEE Guaranteed SWITCHES

MEMA

COLE-HERSEE CO.
20 Old Colony Ave., Boston 27, Mass

New Products

(CONTINUED FROM PAGE 63)

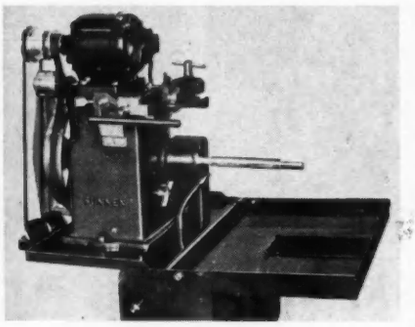
plied with operating oil, the assembly occupies a space 16⅛ in. wide by 28 in. long by 29 in. high. The unit can be mounted on casters, or placed on a hand truck, for maximum portability.

Use Free Postcard for More Details.

125. Honing Attachment

A new compact Wet Honing Attachment for the Sunnen Bushing Grinder has been introduced by the Sunnen Products Co., St. Louis, Mo.

This new conversion unit, known as LBN-640, has several new features. A belt from the bushing grinder motor drives the



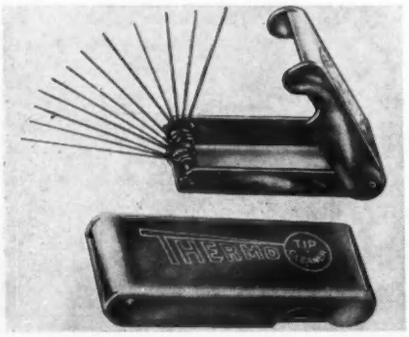
honing oil pump—eliminates the need for a separate electric motor. The ample settling capacity of the 7-gal. oil reservoir plus a series of baffles assures the user that all cuttings and grit must settle to the bottom.

Large flow back pan on this wet honing attachment folds to a vertical position—saves space when the machine is not in use.

Use Free Postcard For More Details.

126. Welding Tip Cleaner

A newly designed set of cleaners for acetylene welding tips, contained in an aluminum case, is announced by Thermacote Mfg. Co., Los Angeles, Calif.



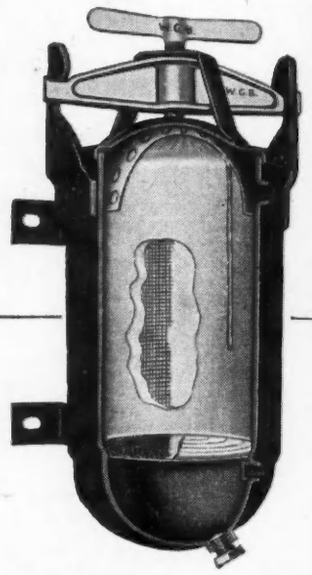
Standard set of 12 cleaners will clean 27 drill sizes from No. 74 to No. 49, while the special set cleans 19 drill sizes from No. 47 to No. 30. The cleaners are specially designed to clean the tips without damaging the parts, thus insuring a long, straight flame for clean, slagless cuts.

Use Free Postcard For More Details.

(TURN TO PAGE 145, PLEASE)

WGB

CLAROFICATION



IS MAXIMUM ECONOMY

MR. FLEET OPERATOR: When you received your Autocar, Brockway, Buda, Diamond T, General Motors or Mack motor equipped with a WGB ClarOfier, you obtained the best filtration that money can buy—provided you use genuine WGB Cartridges, which are covered by patents preventing duplication. But if you use substitutes, which are prevented from using the WGB principle, you cannot expect WGB economy or motor protection.

The results which induced these manufacturers to equip their fine motors with WGB Oil ClarOfiers were obtained by use of the complete unit. It is not WGB filtration unless genuine WGB Cartridges are used. Substitutes cost more, because they do less. Be fair to yourself, to your motor and to the WGB ClarOfier. Use genuine WGB Cartridges and you'll get the economy, efficiency and motor protection which the manufacturer intended you to have.

WGB

OIL CLARIFIER, INC.

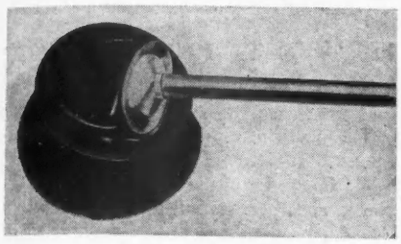
KINGSTON, N. Y.

New Products

(CONTINUED FROM PAGE 142)

P127. Fountain Brush

The Milwaukee Dustless Brush Co., Milwaukee, Wis., has announced a new Round Speed Wash fountain brush designed especially for washing small trucks and passenger cars. It is light weight, compact and handy. By soaking, scrubbing and rinsing in one operation, it is said to cut washing time more than half.

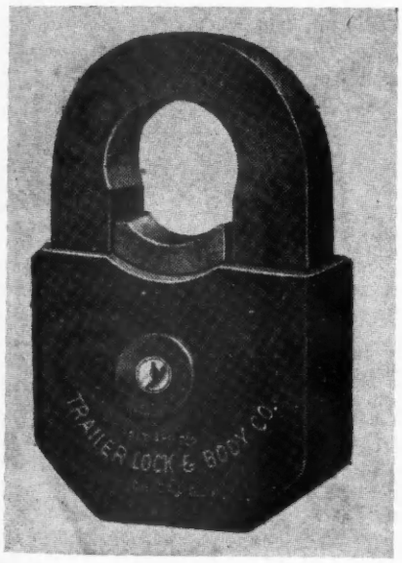


Water is constantly fed through the handle from a standard size hose. Pressure is equalized by eight jets in the brush block. Back and handle are of light weight steel. Tufts are a mixture of nylon and high grade horsehair, stitched into the block by hand.

Use Free Postcard For More Details.

P128. King Pin Lock

A new trailer coupling lock designed to fit over the trailer king pin to prevent hijacking has been placed on the market by Trailer Lock and Body Co., Chicago.



Of sturdy construction the lock is hammer proof and cannot be removed without a special key. All locks for a fleet may be keyed to work with one master key. The unit measures 6 x 9 in., and weighs 17 lb.

Use Free Postcard for More Details.

P129. Protective Coating

WHIZ P.U.C. is a new protective underbody coating produced by R. M. Hollingshead Corp., Camden, N. J.

P.U.C. is described as a tough, hide-like covering which is easily applied with standard equipment and dries quickly to form a weather-proof protective coating. An important feature is its high flash point and freedom from noxious odor. The coating is said to provide effective insulation, prevent rusting and corrosion and also absorb chassis vibration and noises.

Use Free Postcard For More Details.

P130. Hoist Unit

The Coffing Hoist Co., Danville, Ill., has introduced a new Hoist Jack which is a combination hoist and bumper jack. The new hoist-jack has a rated capacity of 2000 lb. and weighs only 23 lb.

This unit features a hoist whose ratchet and pawl construction uses the smallest possible number of working parts; a "safety-load" handle designed to bend at a maximum overload before there is any possibility of the chain breaking or of hooks straightening out; and a stroke which requires very little headroom.

Use Free Postcard For More Details.

P131. Filtering Element

Hygrade Products Co., Inc., Long Island, N. Y. has developed a new line of Super Filters, now available to the repair trade. Instead of the conventional type of steel

(TURN TO NEXT PAGE PLEASE)

BOLSER
Safety Equipment

GENUINE
BOLSER
FLARE

There is no known warning signal equal to the oil-burning flare. It PRODUCES its own light—does not depend on haphazard reflection for warning. The FLICKERING MOVEMENT of the open flame arrests attention—is visible from ALL angles. This type of warning is recognized throughout the nation as a signal of road obstruction. It is not confused with reflectors, tail lights, etc.

Protect YOURSELF and your EQUIPMENT and the MOTORING PUBLIC by using the SAFEST type of warning signall Genuine BOLSER OIL BURNING FLARES.

If it Nests its a **BOLSER**

- Accepted nationally as the LEADER in truck flares, the flares are compacted under our exclusive patented "nesting" feature, making them EASIER TO SET OUT — EASIER TO PICK UP.
- A quarter turn of the carrying handle locks them into a leak-proof, rattle-proof and wear-proof unit!

Hi-Way Warning FLAGS . . . Ful-Vue Truck MIRRORS . . . Truck REFLECTORS . . . Truck Marker and Clearance LIGHTS . . . Truck FLARES . . . DIRECTION SIGNALS . . . FUSEES

THE BOLSER CORP. Cedar Falls, Ia.

New Products

(CONTINUED FROM PAGE 145)

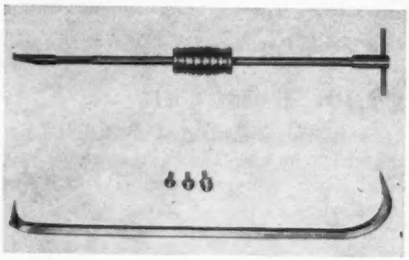
mesh, the filtering element is made of micro-mesh or pulverized stainless steel, compressed to form a thin porous disc. The fine chamois-like "texture" of the disc prevents the passage of all foreign matter, yet permits a free flow of gas.

This filtering element will not corrode, slime up or disintegrate, and is guaranteed for the life of the filter, the manufacturer stated.

Use Free Postcard for More Details.

P132. New Pullers

Two new pullers, a single jaw slide hammer type and a pinion puller bar, have been announced by the Plomb Tool Co., Los Angeles, Cal.



The single jaw puller, designated as No. 4056SJ, consists of a T-handled rod, slide hammer and single jaw attachment. Although intended for general pulling use, it is especially suited for removing grease retainers, for lubrication and brake work, and for wheel alignment. With this one puller it is possible to handle many jobs without changing the set-up.

The pinion puller bar, identified as No. 4050, was designed for use on General Motor cars, but the short and long jaws adapt it to many uses, the manufacturer states. Three sizes of fulcrum plugs are furnished to provide the correct leverage.

Use Free Postcard for More Details.

DEPENDABILITY

RUSCO Registered BRAKE LINING AND CLUTCH FACINGS

"The Standard of the Industry"

RUSCO HEAVY DUTY FUSED FABRIC CLUTCH FACING

THE RUSSELL MANUFACTURING CO., MIDDLETOWN, CONN.

P133. Truck Seat

The new Bostrom Model 47 Seat, developed by Bostrom Mfg. Co., Milwaukee, Wis., is an individual suspension with a shock absorber valved for the individual driver. It is designed to give the truck driver a passenger-car ride.

The company claims the following features for the seat: It controls the rebound which cannot be done in ordinary spring or all rubber cushions. It eliminates backscrub entirely, eliminating backaches, wear on covers and clothing.

The new seat tailors the ride to each individual driver by simply pulling out (without tools) one or more of the six main springs. It is adjustable for leg length and comfort-change. It can be simply and easily renewed by changing snap-on covers in a matter of minutes.

Use Free Postcard For More Details.

P134. Truck Step

Development of a portable steel step which may be attached anywhere on the steel rub-rail of its truck bodies has been announced by Mid West Body & Mfg. Div., Paris, Ill. This "Handy Step" may be attached either on the rear or at any point along the sides of a truck body.

The step hooks over the steel rub-rail and is held firmly in place. To permit the truck operator not only to climb into the truck but also to descend easily the ladder-step has a slight slant outward as a safety feature.

Use Free Postcard for More Details.

(TURN TO PAGE 148, PLEASE)

Motor Jewels

IN the finest precision timepiece, jeweled bearings, made to the precision standards specified by timepiece engineers, are used to insure accuracy and performance.

In modern automobile engines likewise, the leading automotive engineers carefully specify bearings made to exact precision limits as necessary to insure accurate and fine performance.

Monmouth Replacement Bearings are made to the exact precision limits specified by car builder engineers—because it is only by the use of such bearings that continued satisfactory performance for reconditioned engines can be obtained.

Specify "Monmouth" Bearings—they meet the specifications of the men who know motors best.

NAPA Assurance of Quality

Your NAPA Jobber is a Good Man to Know!

MONMOUTH PRODUCTS COMPANY • CLEVELAND 3, OHIO

FOR ENGINE BEARINGS
CLUTCH PLATES AND PARTS
CHASSIS PARTS

Monmouth Trade Mark *is the name*

New Products

(CONTINUED FROM PAGE 146)

P135. Stand-by Heater

Stand-by heat for preserving the temperature of perishable cargoes while the trailer is disconnected from the tractor, is now available through use of a new heating unit developed and manufactured by the South Wind Division of Stewart-Warner Corp., Indianapolis.

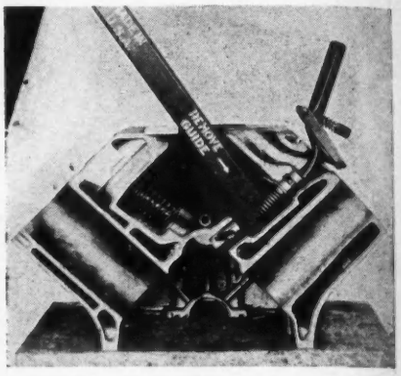
Equipped with automatic electrical ignition and safety controls, this stand-by heater burns any grade of automotive gasoline in a sealed, stainless steel chamber, providing full heat in a matter of seconds.

The unit is designed to operate on 110-volt alternating current. Automatic thermostat controls regulate the heat output to maintain desired temperature through steady circulation of just the right amount of warmth. Heat output ranges up to 20,000 Btu's per hour—more than enough heat to warm a large insulated trailer on the coldest day—and cargo compartment is kept warm by a constant circulation of warm air at the rate of approximately 120 cu ft per minute.

Use Free Postcard for More Details.

P136. V-8 Lifter

In one lifter set, Sunnen Products Co., St. Louis, Mo., provides the mechanic a kit of tools to remove and re-assemble all valve assemblies from Ford and Mercury 85, 95 and 100 hp. engines. This set was specifically designed to handle late model Fords with new type close-coiled valve springs.



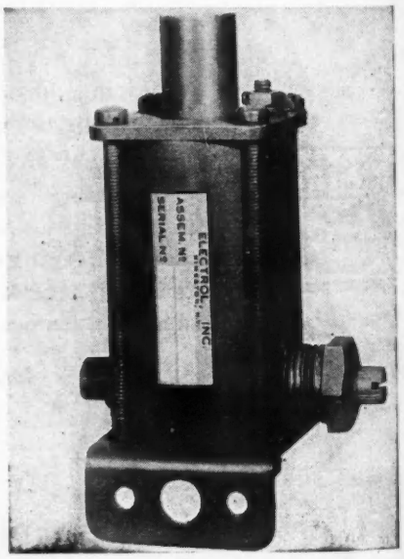
The lifting principle is new—the three-foot bar lifts from the bottom of the valve stem, making it unnecessary to lift with the bar inserted through the coil springs.

This new lifter set includes a hardened forged steel valve guide driver for driving down tight, carbon-filled valve guides. The driver locks on the valve and cannot be driven from its place. It is designed so that the valve is held open, wide enough to prevent damage to the valve and valve seat while driving the guide down.

Use Free Postcard For More Details.

P137. Brake Control

A new brake control which prevents vehicles from rolling forward or backward when halted on grades and which prevents "creeping," on the level has been developed by Electrol Inc., Kingston, N. Y. The new control, called RolControl, is an



electromagnetically operated device which fits into the brake system immediately after the master cylinder. When energized, it holds brake pressure until released by

(TURN TO PAGE 150, PLEASE)

Now... SPOT-VULCANIZE WITHOUT DISMOUNTING THE TIRE!

WELDS SIDE-WALL CUTS WITHOUT REMOVING WHEEL

Saves time—saves plenty of money. This revolutionary machine does a perfect job—does it fast.

No need to dismount the tire. Just clean the spot, fill with live rubber, and clamp on the Vulcanizer. In 30 to 35 minutes the job is done. No need to "watch over it"; the job is automatically timed by Tireweld's "Marktime" switch. Skilled labor not necessary. Takes spots up to 4" x 5". Write for all the facts, today!

$105 COMPLETE

NO MORE PATCHES!

TIREWELD repairs tubes and casings by making an actual weld of live rubber. Heat is automatically turned off at the right time to assure a perfect cure. Leaves operator free for other duties. Compact, simple, inexpensive. Get the folder "No More Patches".

ALLIED AUTOMOTIVE CORPORATION

14510 Burt Road • Detroit 23, Michigan

Heavy Duty THROUGH and THROUGH

GMC heavy duty models are extra tough and rugged . . . heavy duty through and through. They are built that way because GMC is in the commercial vehicle business exclusively, because GMC designers and engineers know the kind of engines, axles, frames, transmissions, clutches and springs that will best perform on every heavy hauling operation. And they prove out that way . . . over-the-highway, off-the-road, or in city stop-and-go.

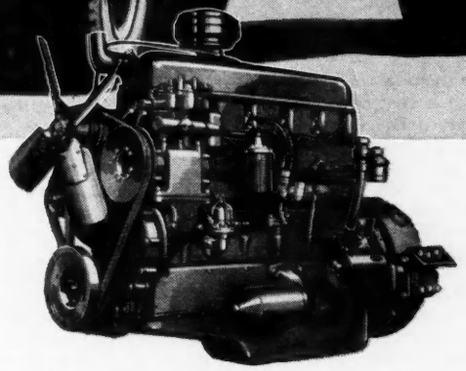
GMC heavy duty models are available in gross weight ratings of 19,000 to 90,000 pounds and offer wheelbase, engine and chassis options which permit manufacture of vehicles exactly suited to specific hauling needs. Let your GMC dealer show you how a heavy duty GMC can do a better heavy hauling job for you.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

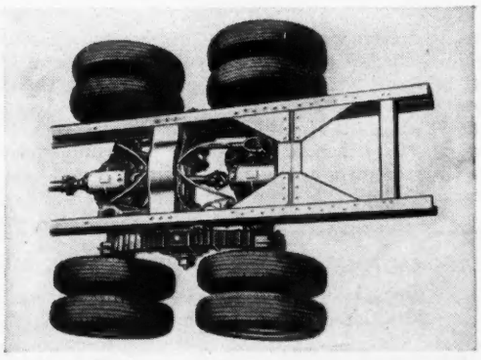
THE TRUCK OF VALUE

GMC TRUCKS

GASOLINE • DIESEL



GMC's four heavy duty gasoline engines, of proved, efficient valve-in-head design, offer such performance and dependability extras as Turbo-Top Pistons, Airplane-type Main Bearings, Tocco-hardened Crankshafts.



GMC's wide range of chassis options includes six basic rear axle designs. Illustrated is the rugged Worm Drive Tandem providing dual drive and maximum traction for extra heavy duty truck or tractor work.

New Products

(CONTINUED FROM PAGE 148)

a fingertip slide conveniently located on the shift lever.

Six models of the one basic unit cover all model cars. Each unit is equipped with a self-contained mounting bracket which is an integral part of its casing. Shipped with complete wiring and tubing, a dashlight indicator and a plastic knob for the shift lever containing a safety slide switch.

Use Free Postcard For More Details.

P138. Disc Sander

A new drum and disc sander has been developed by the Foster Mfg. Co., Buffalo, N. Y. Improved features of the machine include low cost operation due to the design of the sanding drum which enables the use of any standard size sheet of flint, garnet, emery paper or cloth. This eliminates the necessity of using sleeves or belts.

The sander is equipped with dust sealed, oil sealed bearings which require no lubrication. Work rides on a large planer table equipped with a mitre gage, making a variety of compound angles possible to finish rough sawed joints.

Use Free Postcard for More Details.

P139. Engine Heater

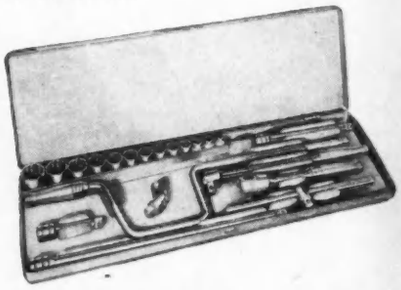
The H. D. Campbell Co., Rochelle, Ill., announces a new electric, thermostatically controlled engine heater designed to maintain engines at an easy-to-start temperature while parked inside or outside the garage in cold weather. The unit plugs into any 110-120 AC light socket, is safe, uses little power, and can be left plugged in all night to assure a quick starting car on the coldest morning.

The new unit is of simple design with a Chromalox heating element, pilot light and adjustable thermostat.

Use Free Postcard For More Details.

P140. New Sockets

Snap-on Tools Corp., of Kenosha, Wis., announces the introduction of a streamlined redesigned ⅜ in. drive line of sockets and handles known as the new Snap-on Ferret Set.



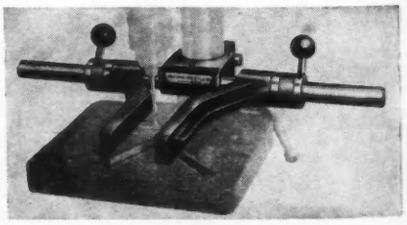
The Palm-Grip handle, built to conform to the shape of the user's hand, is one of the features of the new set. Four sockets have been added which give the set size coverage between ¼ in. and ⅞ in.

Newly designed sockets will have four indentations on the inside of the socket drive hole to make the engaging of the ball found in the handle of the driving unit an easy job. Finished in full chrome.

Use Free Postcard For More Details.

P141. Work-Holder

A new safety work-holder developed by Universal Vise & Tool Co., Parma, Mich., clamps to the column of any small standard drill press, and instantly secures the work with only a quarter-turn of a single lever.

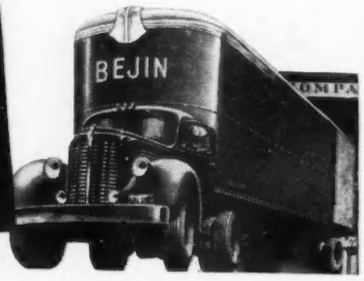


In many cases, this new tool can substitute for simple drill jigs, thus simplifying tooling and cutting costs. By replacing makeshift devices such as bolts and C-clamps, it is said to enhance safety and increase accuracy. The clamping arms are instantly adjustable along the length of the cross arm to encompass the full width of the drill press table.

Use Free Postcard For More Details.

(TURN TO PAGE 258, PLEASE)

TRUCK OPERATORS



WOULD A *saving* OF $5,972 A YEAR
ON AN INVESTMENT OF $42.50
BE OF INTEREST TO YOU?

Well—one well-known operator saved that amount last year. And he did it at a cost of 11 3/5 cents a day! This operator is the J. E. Bejin Company of Detroit—a nationally known trucking company, admired generally for its business efficiency.

And how did they do it? By using the famous, new, HEARNE MAP with its mechanical "Finder"—the Finder which *locates exact addresses instantly* and gets the driver to his destination points by the most direct streets or roads without loss of valuable time.

Hearne Maps (available for any city or county in the United States) make unbelievable savings in eliminating costly delays . . . man-hours . . . gas . . . tires . . . mileage—and TEMPERS! These maps show every street with numbers in *large* type, so readable that *everyone* can read them at a glance. They are 44" x 65", mounted on spring rollers, with hanging rail. The fine map-linen is washable . . . markable, with cellophane finish which wipes clean, just like a blackboard. And the principal routes are in color.

MORE THAN 100,000 TRUCK OWNERS ARE USING A *Hearne* MAP EVERY DAY!

Frankly, the money you MAKE on this 11 3/5 cents per day investment is so amazing you won't believe it. But don't take our word for it—or even the Bejin Company's figures. Find out for yourself at *our* expense. Accept our 10-day FREE TRIAL OFFER for a map of your city or area—and if at the end of ten days you would consent to part with the map, except at the point of a gun, just send it back to us. *YOU* need a Hearne Map.

Free FOR 10 DAYS

HEARNE BROTHERS, DEPT. C, NATIONAL BANK BLDG., DETROIT 26, MICHIGAN

Without obligation to me send map of my city and county area.
After ten days' free use in my office I will return it or remit $42.50.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

HERE'S UTMOST RELIABILITY IN SPEEDOMETER CABLES, TOO

No matter what makes of buses or trucks you operate, there are AC-engineered and AC-built Speedometer Cables for replacement service, either in complete cables ready for use, or in special kits with necessary parts and tools.

Twenty years of "know-how"—twenty years of experience in meeting the factory equipment requirements of automotive engineers—have given AC Speedometer Cables the *utmost reliability.* That's why more and more fleet owners insist upon AC Cables for all replacements.

Standardize on AC, the equipment that gives you *utmost reliability.*

AC CABLES
assure THIS kind of QUALITY

- ★ Flexible cables made of highest grade steel wires on special, patented winding machines.
- ★ Flexible cables heat treated by patented methods to assure highest possible quality, which means:
  - Low whip
  - Low internal friction
  - Low torsional flexibility
  - High torque strength
- ★ Built to meet the exacting requirements of car and truck makers.

AC SPEEDOMETER CABLES

AC SPARK PLUG DIVISION, GENERAL MOTORS CORPORATION

MEET *Swishy*

NOBODY sees him, nobody hears him—yet he's been around for years.

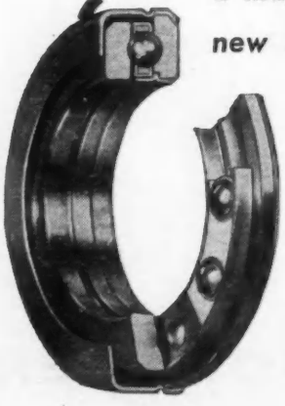
Swishy is swift, sure, smooth, silent car and truck performance.

When the first BCA Ball Bearing was put to work, fifty years ago, Swishy came into his own.

Since then he's worked on so many makes and models of both new and used cars and trucks that most of us take this superior service for granted.

HE'LL TELL YOU:

When you rebuild a clutch or do a major overhaul, always include new BCA Bearings as protection against extra downtime.



When you buy bearings, look for the Jobber displaying Swishy and always ask for BCA Ball Bearings.

LOOK FOR *Swishy* ON DISPLAY

ALWAYS ASK FOR BCA

BCA BALL BEARINGS

Bearings Company of America, Lancaster, Pa.

Washington Runaround

(CONTINUED FROM PAGE 75)

Tax Reduction Brighter

The chances for reduction of excise taxes burdening the trucking industry are becoming brighter. The present session of Congress already has before it several bills which would substantially reduce automotive levies.

Perhaps more important is a growing feeling within the Administration that such action is necessary. For example, Treasury Secretary John W. Snyder, recently stated that "some of the present excises enter into business costs and operate to disturb competitive relations. An outstanding example is the tax on transportation of freight." The trucking industry heartily agrees with Mr. Snyder on this point.

Both 3 per cent tax on the transportation of property and the 1½¢ per gallon Federal tax on gasoline are under fire.

Brake Study Progress

Members of the Advisory Committee on Motor Vehicle Brake Research to the Public Roads Administration at their recent meeting in Washington discussed details of an action program that will be launched during the spring.

The committee studies eventually will lead to recommendations for the establishment of minimum brake performance requirements that will insure maximum safety of operation for all types of vehicles.

Objectives of the program will be to find out what levels of brake performance can reasonably be met by vehicles currently in service, to determine the essentials of reasonable brake regulations and practical means of compliance with brake regulations, and to establish a better understanding of braking phenomena.

Trailer Estimate, 55,000

Truck-trailer production during 1947 will probably total not more than 55,000 units, according to latest estimates of the Truck-Trailer Manufacturers Association.

During October, the latest month for which Census Bureau figures are available, the industry turned out 3,962 units—a 25 per cent increase over the 3,158 produced in September. Shipments also continued to climb with 4,605 during October, a 17 per cent increase over the 3,948 units shipped in September.

Production for the first 10 months totaled 46,586 units and is not likely to top 55,000 for the year.

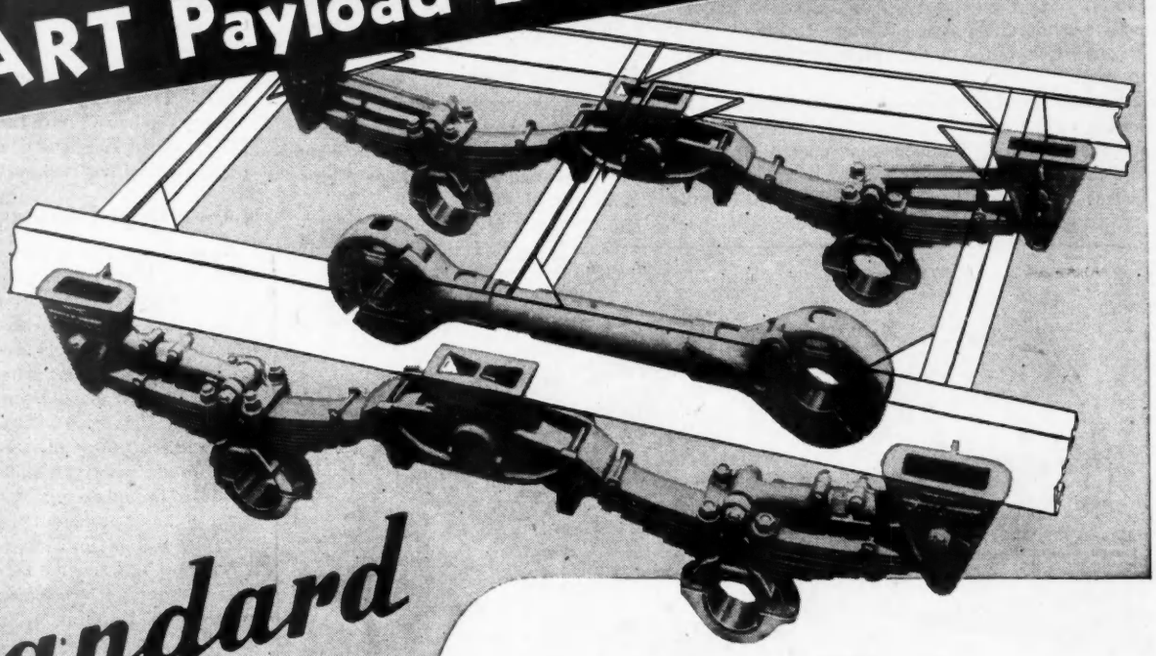
The inventory position of the industry has changed and stocks are low. Deliveries may get tighter in coming months due to the steel shortage.

1948 Traction Test

The Joint Committee on 1948 Winter Traction Tests will gather at Pine Lake near Clintonville, Wisc., on Jan. 19, to begin a two-week series of vehicle brake tests

(TURN TO PAGE 154 PLEASE)

STOP Wheel Kick-up!
START Payload Build-up!



Standard UTILITY TANDEM UNIT

Slashes Ton-Mile Costs Sharply

Standard-*Utility* Tandem Units take the kick and chatter out of transportation *right now!* Sturdy Torque Arms prevent brake force from bouncing back to the second axle. Ton-mile costs are slashed sharply and legal payloads build up at once. Write, wire or phone today for complete information on how to eliminate all-around assembly wear with heat-treated Standard-*Utility* Tandem Units!

Ask Us About Our
Free Engineering Consulting Service

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PHONE: HENDERSON 0414. CABLE ADDRESS: STANFORAX
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Standard Forge & Axle Company
INCORPORATED
MONTGOMERY 2, ALABAMA

AXLES BRAKES FORGINGS TRAILER PARTS

UNDER LICENSE FROM UTILITY TRAILER MFG. CO., LOS ANGELES

Washington Runaround

(CONTINUED FROM PAGE 152)

on ice. This joint committee headed by Carl C. Saal, Public Roads Administration, was organized by the Winter Driving Hazards Committee of the National Safety Council.

Interest in the effectiveness of vehicle brakes on ice arose in part out of the difference of opinion between some operators and the ICC over the action of front wheel brakes on combinations. All vehicles will be tested with and without front wheel brakes and the results may well indicate the course of future vehicle requirements.

Vehicles to be tested include two 3-axle trucks, one empty and one loaded to 30,000 gross vehicle weight; a tractor semitrailer loaded to 40,000 gross vehicle weight; and, a truck full trailer combination.

Six More Join ORC

Six additional truck operating firms have signed agreements for the establishment of reserve units within their firms under the Organized Reserve Corps Affiliation Plan.

The new units and the firms sponsoring them are: 736th Transportation Truck Company (Heavy), Belyea Truck Company; 756th Transportation Truck Company (Heavy), Signal Trucking Service, Ltd.; and 757th Transportation Truck Company (Heavy), Asbury Transportation Company, all of Los Angeles; 800th Transportation Truck Company, Maine Motor Vehicle Association, Inc., of Portland; 735th Transportation Truck Company (Heavy), Knaus Truck Lines, Kansas City, Mo.; and an Engineer Dump Truck Company, Roehl Construction Corp., Knoxville.

Labor Dept Baffled

Labor Department officials frankly admit that they have gotten little help from the hearings concerning proposed revisions of regulations affecting exemption of white collar workers from the overtime provisions of the wage-hour Act. These hearings have been going on since Dec. 2.

The testimony has been voluminous—also varying. Most of the controversy centers around what yardstick should be used in determining exempt executive, administrative and professional employees. At present, two major factors include salary levels and the amount of work performed in non-exempt labor. Generally, executives receiving $30 a week or more and administrative and professional workers receiving $200 a month or more are exempt; also, the three classes of employees may be generally exempt as long as non-exempt duties do not take up more than 20 per cent of the specific employee's time.

It is proposed to change these two particular criteria by raising the salary levels as determining status and also changing the non-exempt labor limits to a straight 8-hour basis rather than 20 per cent of time worked.

Labor groups have proposed that the salary criteria for exemption be raised to as much as $500 a month; management has generally conceded that the level should be raised to perhaps $275 per month. Managment sees a possible drop in the present wage levels over the next three or four years which would clearly make the $400-$500 levels unworkable.

Industry in general, particularly the trucking groups, are strongly opposed to use of either wage levels or the number of hours worked in non-exempt duties for determining exempt status. They hold that these are more equitably worked out through mutual agreement between management and the employee. They feel that the extra privileges which go with a white collar status—straight salary, no punching the time clock, no docking of wages for tardiness, ad infinitum more than make up for potential loss of overtime.

The trucking industry maintains, in reference to the 20 per cent requirement, that it is impossible to measure the amount of time the three types of employees use for exempt and non-exempt duties. It opposes even more strongly than the present 20 per cent provision, the proposed revision establishing a straight 8 hours as a measuring stick for this factor.

END

(Please resume your reading on P. 76)

The tremendous national acceptance of Eberhard "Long Run" truck body fittings is evidenced everywhere on the truck bodies of important National Fleets.

These are the fleets that get the big jobs done and must of necessity rely upon dependable hardware.

Eberhardware has consistently met the most rigid requirements. Our consultation service is always available to you without obligation. We invite you to use it.

EBERHARD Long Run
TRUCK BODY FITTINGS
E
EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Co. 2734 TENNYSON ROAD, CLEVELAND, OHIO

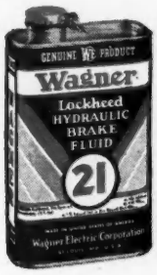
for Safety's Sake... REMEMBER YOUR 3 R's

1 REPAIR with Wagner LOCKHEED HYDRAULIC BRAKE PARTS

Perfect fit, dependable performance and known acceptance are available in Wagner parts, made by pioneer manufacturers of original Wagner Lockheed Hydraulic Brakes.

2 REFILL with Wagner LOCKHEED HYDRAULIC BRAKE FLUID

An all-season fluid that functions perfectly under all atmospheric temperatures. Used by car and truck manufacturers and recommended for all hydraulic brakes.



3 RELINE with Wagner CoMaX BRAKE LINING

Designed, manufactured and thoroughly tested to insure more quick, safe, smooth stops per lining. Complete coverage for *all* your needs... in sets, rolls, blocks, slabs or cut segments. Available everywhere through Wagner jobbers.

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EVERY REPAIRMAN NEEDS

Bulletins HU-17G and HU-197... Tips for better Brake Service—free on request.

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID · NoRol
CoMaX BRAKE LINING · AIR BRAKES · TACHOGRAPHS
ELECTRIC MOTORS · TRANSFORMERS · INDUSTRIAL BRAKES

A48-1

FLEETMAN'S LIBRARY

A Review of Booklets and Catalogs Fleetmen Will Find Helpful

COMPRESSED AIR HANDBOOK, a 400-page, bound book published to meet the demands for a reference text on applications, installation, operation and maintenance of compressing equipment and air-powered tools of all types. In addition to making available a mass of new and original data, the handbook contains all of the standard reference material formerly published as "trade standards." Included are definitions, test standards and numerous basic tables and formulae. Published by Compressed Air and Gas Institute, New York, N. Y., the book is priced at $3 per copy.

BRAKE SERVICE MANUAL, a 48-page publication printed in two colors contains a trouble shooting chart as well as general instructions for the method of balancing all types of brakes. In addition, the brake systems for all makes of cars are shown with step-by-step instructions provided for relining and adjustments. Price is $2 per copy. Available from United States Asbestos Division of Raybestos-Manhattan, Inc., Manheim, Pa.

HOW TO RUN A LATHE, a new edition featuring a number of changes in text material and illustrations. The 128-page book covers such subjects as the operation of the lathe units, grinding cutter bits, making accurate measurements, plain turning, chuck work, taper turning, boring, drilling, reaming, tapping, cutting screw threads, etc. Published by South Bend Lathe Works, 130 E. Madison St., South Bend 22, Ind. Copies with paper covers, 25 cents; with leatherette covers, $1.

ARC WELDING CATALOG, a 36-page, 3-color publication, containing illustrations, descriptions, dimensions and specifications on the complete line of Simplified Arc Welders made by The Hobart Brothers Co., Troy, Ohio. Free copies are available by writing to the company.

FIFTH WHEEL CATALOG, a publication describing the new Austin 5th wheel with regard to working principles, safety features and construction methods. Inquiries may be addressed to the Austin Trailer Equipment Co., Muskegon, Mich.

BULLETIN CB-47, a 4-page folder illustrating and describing the 6-in. Type CH Plain Hydraulic Grinder manufactured by the Landis Tool Co., Waynesboro, Pa. Free copies are available.

MIXERS ON THE MOVE, a folder describing FWD trucks available for mounting ready-mixed concrete bodies. Describes the use of trucks in capacities ranging from 20,000 to 38,000 lb gvw, for use with mixers from 2 to 5½ yds capacity. Write to Advertising Dept., The Four Wheel Drive Auto Co., Clintonville, Wis.

THOMPSON LIBRARY

A 27-volume "Post-war Technical Library of instructions on engine and chassis repair jobs is being offered to the automotive maintenance trades by Thompson Products, Inc., Cleveland, through the company's replacement parts distributors.

The volumes are supplied with an indexed steel cabinet designed for use on wall or bench. Sixteen are devoted to passenger cars and the rest to trucks, buses, tractors, diesel, and industrial engines.

Repair shops may take out the entire set of 27 volumes or any selection of them by purchasing Thompson replacement parts at varying list price totals.

The new library has 1800 pages, size 6¼ in. x 9¼ in., and over 6000 illustrations.

WITH replacement costs soaring, your responsibility becomes greater than ever. It's time to double check fire-fighting equipment in every vehicle, in every garage location.

Is every vulnerable point covered, and by the right type of extinguisher? . . . . Is every extinguisher freshly charged, ready for instant action?

There is a size and type of Buffalo *better-built* Fire Extinguisher exactly suited to every fire hazard. Your thoroughly-trained Buffalo representative will be glad to check with you and make recommendations if you need additional equipment. If he isn't listed in the classified section of your telephone directory, please write us direct.

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Look for this Label in Your Uniforms, Utility and Work Clothes!

YOUR uniformed personnel look better, feel better and work better with clothing made of durable, smart looking Reeves Army Twill. Its high tensile strength assures rugged wearability with long-lasting economy. Vat dyed colors are fast to sun, water and perspiration. Sanforized Shrunk*, Reeves Army Twill retains smart tailoring after repeated washings. Remember—over 90 million yards of this same fabric helped equip America's fighting men—exceeding Government specifications under the toughest climatic conditions.

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Write for names of manufacturers specializing in uniforms and work clothes for your industry.

**Residual shrinkage less than 1%.*

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THE REEVES FABRIC GROUP INCLUDES:

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THE EIS AUTOMOTIVE CORP

Pull in those good EXTRA DOLLARS!

THE dollars you pull in, outside of your regular service and repair work, help to boost the year's profits. There are plenty of these good *extra* dollars in the redesigned and improved merchandiser for Eis Individual Brake Fluid Refills.

The sound advice printed on this carefully designed "silent salesman," if followed properly, will get you your share of this business.

Ask your jobber to show you this and other profit-building merchandisers specially planned for YOU.

THE EIS AUTOMOTIVE CORPORATION
MIDDLETOWN, CONN.

BRAKE PARTS
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Just Out!

A snappy two-color merchandiser that gives you 18 3-oz. cans (individual refills) of Eis Super "40" Brake Fluid — famous as "The pioneer of better brake fluids".

PERMAG
Paint Stripping Compounds

Beginning Our 25th Year

for Fast, Economical Paint Stripping Operations

Fleet owners and other concerns who have paint stripping operations find the PERMAG Hot-Flow-On process efficient and time saving.

PERMAG Special Stripper Compounds will strip a large truck unit, making it ready for a new coat of paint in from 1½ to 2½ hours; depending on the condition of the surface to be painted.

The PERMAG hook-up effects a saving, as the solution is reclaimed and can be used over again.

PERMAG FLOOR CLEANER PERMAG No. 168 removes grease and oil from concrete floors and driveways. PERMAG cleans the "caked-on" grease and dirt from floors.

PERMAG HAND CLEANER Quickly removes heavy grease and grime, leaving the hands soft and smooth. Removes stains from washbasins, etc. Leaves no odor.

Let us send you full information on PERMAG Cleaners for the automotive industry. Write or telephone.

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Mfrs. Scientific Cleaning Compounds for Industry
Main Office: 50 Court St. BROOKLYN 2, N. Y.
In Canada: Canadian PERMAG Products Ltd., Montreal—Toronto

CCJ Newscast

(CONTINUED FROM PAGE 98)

The Highway Trailer Co. has opened a new sales and service branch in St. Paul, Minn.

Hygrade Products Co., Inc., of Long Island City, N. Y., has been purchased by Standard Motor Products, Inc., also of Long Island City. Hygrade will be operated as a separate plant.

Reps Tool Company, Inc., formerly of New York City, is now located at 94 Allyn St., Hartford, Conn. The company makes well-known pipe and stud extractors.

Commercial Sales Co., a division of Cochran and Celli, Oakland, Cal., has been appointed zone distributor for Lindsay Structure truck bodies in northern California and Nevada.

White Motor Co. has named Joseph P. Dermody, operating as the Wolverine White Truck Sales Co., as distributors for White trucks and busses. The new organization, with headquarters at 211 Detroit St., Jackson, Mich., will represent White in Jackson, Hillsdale and Branch counties.

The Hall Mfg. Co., Toledo, Ohio, has been purchased by the Waterbury Tool Division of Vickers Inc. Many popular Hall tools, formerly manufactured in Toledo, will be produced at the modern Waterbury plant located in Waterbury, Conn.

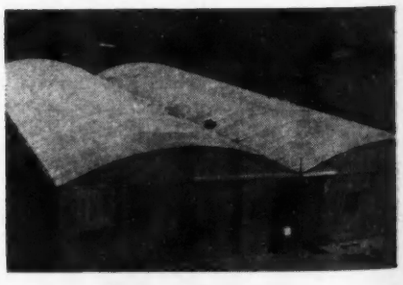
The merger of Robertshaw Thermostat Co. of Youngwood, Pa., The Fulton Sylphon Co. of Knoxville, Tenn., and the Bridgeport Thermostat Co., Inc., of Bridgeport, Conn., under the name of Robertshaw-Fulton Controls Co. was announced by John A. Robertshaw, president of the new organization. Plants will be maintained at all locations.

NEW NWRA OFFICERS

At its annual convention held recently in Dallas, The National Wheel & Rim Association elected the following officers for 1948: president, J. A. Harris, Sr., of Atlanta; vice-president, John Beller of Memphis; treasurer, H. M. Young; and executive secretary, Jos. P. Glover.

(TURN TO PAGE 244, PLEASE)

STEEL BUILDINGS



Pre-insulated steel buildings in 24 and 40 ft. width, from 8 to 12 ft high, and in virtually any desired length are now available from The Pioneer Co., Pittsburgh, Pa. They are said to be weather and vermin proof, fire resistant and lined with ½-in insulation

Controlled Z*RO Transportation by DORSEY TRAILERS

The Frozen Food Carrier of the Highways

The Dorsey Z*RO Transport has been engineered down to the last detail . . . road tested under extreme conditions . . . to provide safe, economical and efficient handling of frozen foods and all perishables at any desired temperature between 0°F. and +50°F.

Constant Temperature Ends Spoilage Waste

Constant temperature is maintained irrespective of time, distance or outside weather conditions by automatic controls—one setting and the independent refrigeration unit operates throughout the trip with no further adjustment.

Durable . . . Lightweight . . . Versatile . . . the Dorsey Z*RO Transport comes to you a Completely Packaged Unit . . . ready for the road.

See Your Nearby Dorsey Dealer

The Dorsey new improved condensing unit has been designed specifically for controlled . . . over the road . . . Z*RO Transportation. Unusually light, and greatly simplified. Mounted inside the front of the van, it is easily accessible for servicing.

DORSEY

DORSEY TRAILERS

INCORPORATED

ELBA, ALABAMA

MODERN DESIGNED TRANSPORTATION

... designed for You!

To help you do your work better, faster and safer, Plomb is continually developing new tools. During the past year alone, 124 high-quality tools, sets and containers were added, and a great many older tools were improved. To get the *best* as well as the *latest* tools, buy from your Plomb Dealer. Write for catalog to

PLOMB TOOL COMPANY
2269Q SANTA FE AVE.
LOS ANGELES 54

PLOMB *Streamlined* TOOLS

CCJ Newscast

(CONTINUED FROM PAGE 242)

DRIVER JOBS MEAGER; WEEKLY PAY, $40 TO $65

Job prospects for heavy-truck drivers are now poor, according to a recent survey made by the United States Employment Service. Demand for additional workers is modest (only a slight expansion is planned) and replacement needs are few. The field is now crowded with fully and partially qualified job-seekers, a great many of whom are veterans. Employment opportunities for new workers will continue to be limited for the next few years.

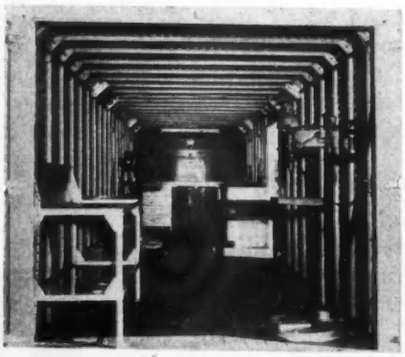
Current employment of drivers of heavy trucks (3 tons or more, including semitrailers and trailers) is estimated to be between 300,000 and 350,000—a considerable increase over prewar levels and somewhat above high wartime employment.

Earnings are usually higher in over-the-road driving and for larger trucks as determined by capacity, gross weight, number of axles, or type of vehicle (truck, semitrailer, or trailer. In local trucking, wages are generally computed by the hour, sometimes by the week, and occasionally by the month. For over-the-road hauls, drivers may be offered a flat sum for the trip or may be paid by the hour, by the mile, or by a combination of both to allow for driving and other work duty.

Hourly rates for experienced workers are predominantly between $1 and $1.50, although they range from a low of 70 cents to a high of over $2. Weekly take-home pay is strongly influenced by the hours worked and by provisions for overtime pay, which may begin anywhere from over 35 to 54 hours per week or 7 to 10 hours per day. Weekly earnings run from $30 to $100, but fall most commonly between $40 and $65.

(TURN TO PAGE 246, PLEASE)

Mobile Shop



A 30-ft Great Dane trailer formed the basis for this rolling machine recently delivered to Birmingham Gas Co. by Birmingham Mfg. Co. Designed primarily to assist in converting company lines from manufactured to natural gas, the mobile shop boasts a 110-volt generator, air-conditioning, and a complete array of power tools

SPINNING POWER

-a Companion Product of *Full-Spark* Plugs
GLOBE-UNION INC.
MILWAUKEE 1, WIS.

Ask for FREE Sample
DRY ABRASIVE
TRUCK SANDING MATERIAL
- Better Performance
- Flows easily . . . dustless
- Non-absorptive . . . non-freezing
- Sharp, graded particles
- Clings to ice . . . economical

Made especially for truck and tractor sanding equipment. In bulk or bagged.
Send for prices
BERCALL COMPANY
512 E. 36TH STREET PATERSON, N. J.

CLIX ENGINE PROTECTION
Pressure Clix
- Signal device for lost oil pressure—lost air pressure in braking system on gasoline and Diesel engines.

Thermo Clix
- Instant alarming device when temperature of the engine reaches the danger point.

Write for descriptive folder today!
THE NASON CO.
7663 Epworth Blvd. Detroit 4, Mich.

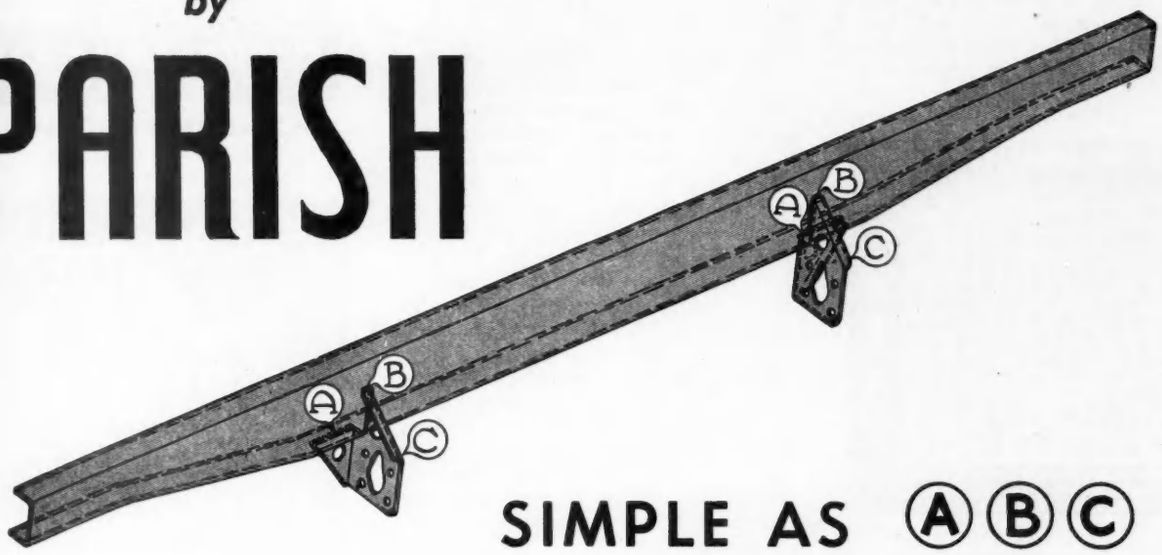
AMERICAN BOSCH
AUTOMOTIVE & AVIATION ELECTRICAL PRODUCTS
FUEL INJECTION EQUIPMENT
American Bosch Corporation
Springfield, Mass.

Specify
Claw
Double-Duty
TRUCK CHAINS
Columbus McKinnon Chain CORPORATION
TONAWANDA, N. Y.

NEW CROSS SILL MOUNTING IDEA

by

PARISH



SIMPLE AS (A) (B) (C)

All cross sills in the Parish line of Universal Body sections are formed in high tensile steel over special dies in high capacity presses, which insures the smooth ironing out of all waves and buckles at the critical compression flanges. The ability of a cross sill to carry a load is no greater than its resistance to buckling while under load stresses.

(A) Parish Sill Mounting Gussets reach under the compression flange of the cross sill, giving a positive resistance at the most critical buckling point.

(B) They reach up behind the cross sill to prevent torsion or the tendency of the sill to twist and turn over.

(C) They provide a mounting face containing holes in the proper location for easy assembly to the longitudinal chassis sill.

Over sixty other PARISH UNIVERSAL BODY SECTIONS are now available from our large stocks.

For security and economy, be sure to request your body builder to use Parish Universal Body Sections on your next truck body or platform job.

Write for the complete catalogued information on this line.

PARISH PRESSED STEEL CO. *Subsidiary of* **DANA CORP.**
READING, PA.

Western Representative: F. Somers Peterson, 57 California St., San Francisco, Cal.

Classified Advertisement

DO YOU SELL FLEETS?

Detroit manufacturer has radically new tire spot vulcanizer, also tube repair machine that welds with live rubber. No more patches. Priced very reasonably; every fleet an interested prospect. See advertisement page 148. Write Allied Automotive Corp., 14510 Burt Road, Detroit 23, Michigan.

DESIGN LATEST QUALITY UNQUESTIONED
SEE YOUR LOCAL JOBBER

KEN KEN
KEN-TOOL MFG. CO. AKRON, O.
LARGEST EXCLUSIVE MFGR'S OF SPECIALIZED WHEEL AND TIRE CHANGING TOOLS KNOWN AND USED AROUND THE WORLD

Water Pumps
for all POPULAR CARS AND TRUCKS
New Pump shown is for OLDSMOBILE 1934 thru 1936
Wohlert CORPORATION
Lansing 5, Michigan

DAVISBILT
Specialists in the field of Fluid Carriers
THE DAVISBILT PRODUCTS CO.
Affiliated with Liberty Products Corp.
Cincinnati, Ohio

FOR LOWER OIL COSTS

Cleaner Oil
•
Conserves Engine Life
•
Cuts Oil Expense
Bulletin No. 837 Gives The Facts
•
MICHIANA PRODUCTS CORP.
Michigan City
Indiana
MICHIANA OIL FILTERS

CCJ Newscast

(CONTINUED FROM PAGE 244)

SAFETY SOUND FILM

A new sound film featuring safe driving practices for the tractor-trailer driver has been produced by Commercial Films, Inc., Cleveland, Ohio. This 144-frame, 27-minute sound slide film points up the basic causes of highway accidents, their attendant heartaches and suffering imposed on others, and finally, ways to avoid these catastrophies. Designed to show the driver how to avoid accidents through safe driving practices, observing traffic rules, keeping his vehicle under control, they film features illustrations taken from the files of the Maryland and New Jersey state police agencies. Direct quotes are from officials of the American Trucking Associations and the Interstate Commerce Commission.

Highlighted are the hazards in wet pavements, winter driving, speeding, passing on hills and curves, unnecessary stopping on highways, driving under the influence of alcohol, etc. Throughout the film the driver's responsibility is stressed in handling his heavy vehicle so as to save lives and preserve property.

Called "The Tragic Road to Safety," the film is available on outright sales basis at $25 per film and record set.

8.25 TIRE MOST POPULAR

Recent figures compiled by The B. F. Goodrich Truck and Bus Tire Department indicate that ten sizes and types cover approximately 78 per cent of replacement needs despite the fact that this company alone makes 164 sizes and types.

An inventory and size popularity chart, based on industry-wide replacement sales for th first six months of 1947 reveals the following percentages:

Size	*% of Total*
8.25-20	13.8
6.00-16	12.4
7.00-20 10-ply	9.7
7.50-20 10-ply	9.6
6.50-16	8.1
6.50-20	5.85
9.00-20	5.55
10.00-20	5.5
7.00-15	3.7
7.00-16	3.57

(TURN TO PAGE 248, PLEASE)

This load of Paul Bunyan's toothpicks, on a Diamond T Model 901, took first place in the third annual Albany (Ore.) Timber Carnival. Gross weight was 85,600 lbs. Load scaled 10,500 ft

MORE PROTECTION! MORE MILEAGE!
P&P-5004
CLEVELAND CHAIN
THE CLEVELAND CHAIN & MFG. CO.
Cleveland 5, Ohio

MICRO-LINOR
The PRACTICAL LOW-PRICED LINE OF WHEEL ALIGNMENT INSTRUMENTS
•
Micro-Linor Service Corporation
1629 West Fort St., Detroit 16, Mich.

DUNK 'EM IN GUNK H-S
COMPLETE DECARBONIZING PROCESS IN PACKAGE FORM

IMMEDIATE DELIVERY
1 GALLON OR A TANK CAR

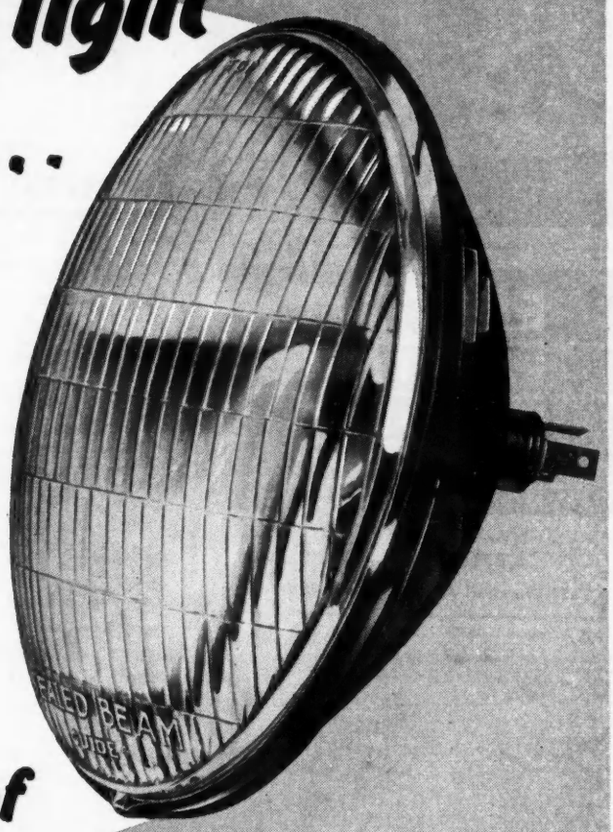
CURRAN CORP. LAWRENCE, MASS.

UNITS AVAILABLE
GRICO
2-AXLE DRIVE
19842 W. Eight Mile Rd.
Detroit 19, Michigan

MAREMONT HAS WHAT IT TAKES
MUFFLERS—TAILPIPES
ALLOY STEEL SPRINGS
MAREMONT AUTOMOTIVE PRODUCTS, INC.
So. Ashland at 16th St.
Chicago 8, Illinois

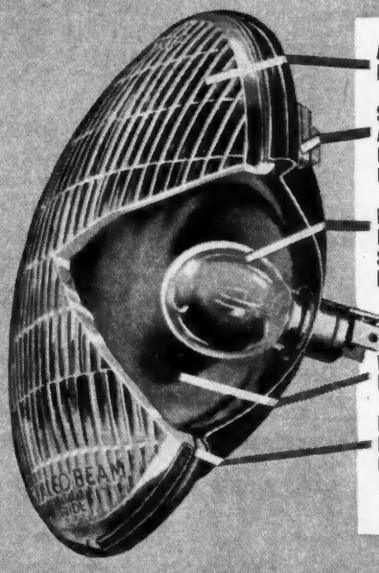
Here's all the light THE LAW ALLOWS...

Guide Sealed Beam units have always used the maximum wattage allowed to provide *full light output.* Their far-reaching upper beam takes the strain off drivers on the long hauls.



PLUS— the Double Protection of NO BLACK-OUT—NO DIM-OUT

Guide Sealed Beam units are designed to *keep burning* when a lens is cracked or broken. They won't "let you down" in the middle of a trip . . . light the way safely until the damaged unit can be replaced. Drivers prefer the *double* protection that Guide Sealed Beam units offer: *No black-out* in case of accident to the lens . . . *no dim-out* through the long life of this permanently-sealed unit.



ACCURATELY MOLDED LENS FOR SAFE ROAD LIGHTING.

STURDY METAL REFLECTOR AND METAL LOCATING LUGS MINIMIZE BREAKAGE OF UNIT.

PERMANENT AND ACCURATELY FOCUSED BULB. SPECIALLY DESIGNED FOR LONG, EFFICIENT USE.

ALUMINIZED REFLECTING SURFACE PROVIDES HIGH EFFICIENCY THROUGHOUT LIFE OF UNIT.

LENS AND REFLECTOR PERMANENTLY SEALED TO KEEP OUT ALL DIRT, DUST AND TRAFFIC FILM.

Guide LAMP
Division of General Motors
Anderson, Indiana

UNITED SERVICE MOTORS

GUIDE LAMP—A UNITED MOTORS LINE
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS

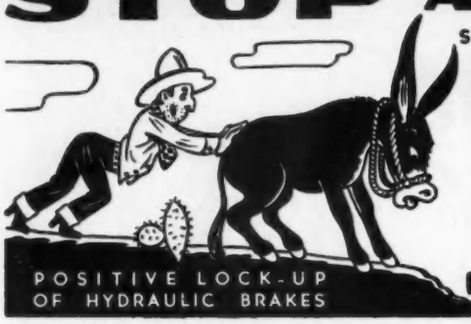
STOP AND LOCK

SAVE TIME AND EQUIPMENT BY USING A

HYDRAULOCK

It's a stubborn little unit which won't allow a vehicle to move until the driver is ready. The HydrauLock provides positive all wheel lock up on any grade, in any position. Pull out the dash control - Step on the brake pedal. YOUR BRAKES ARE LOCKED! A dependable safety feature.

Write today for information



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ELSTON
ELECTRIC
SANDERS
FOR TRUCKS - BUSES - RAILS

★

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1381 Marshall Ave. St. Paul, Minn.

Complete
SPRING SUSPENSION PARTS

MOOG INDUSTRIES INC.
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• RUGER •
Hydraulic
FLOOR CRANES
and Arbor Presses
RUGER EQUIPMENT CO., Inc.
2425 St. Clair Ave. Cleveland 14, Ohio
P. O. Box 3821 Portland 8, Ore.

CCJ Newscast

(CONTINUED FROM PAGE 246)

FORD BUS DISTRIBUTOR

Ford Motor Co. has announced the appointment of Metropolitan Motor Coaches, Inc., with headquarters in Detroit, as exclusive national distributor of Ford Motor coaches and parts.

Metropolitan Motor Coaches is a new company organized by William B. Livingston who for the past 27 years has been associated with GMC Truck and Coach Division of General Motors and its predecessor companies.

James W. Irwin—who since March 1, 1947, has been director of Ford public relations has resigned and formed a corporation, appointed by Metropolitan Motor Coaches, to sell Ford motor coaches in the Cleveland-Buffalo-Pittsburgh territory.

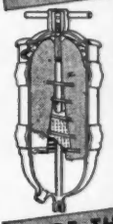
WEBBER OPEN HOUSE

More than a thousand persons inspected the new truck service department of Webber Motors, Omaha, during a three-day open house celebration held Oct. 21 to 23. Banquets for fleet owners and purchasing agents were attended by approximately 400.

New service equipment includes a wheel alignment and frame straightening machine large enough to accommodate any truck or bus, a brake drum lathe and grinder, special valve refacing wet grinder and cylinder reboring machine, electronic engine testing equipment, and a pair of two-post hydraulic lifts for raising largest trucks for lubrication.

(TURN TO PAGE 250, PLEASE)

MORE THAN STRAINS



Actually Cleanses Oil!
DELUXE
MORE THAN FILTERS *Oil Filters*
DE LUXE PRODUCTS CORP., LA PORTE, IND.

SAFE SPEAKER QUALITY
SPEAKER TUBE AND TIRE REPAIRS
One Reliable Source for all your needs
Electromatic Vulcanizer • Match Patch Vulcanizer • Match Patches • Electro-Patches • Rubber Rivets • Replacement Valves • Electro-Timer • Casing Patches • Convertible Tire Valves • Valves and Caps • Motorists' Kits • Solvents • Beveled Patches.
J. W. SPEAKER CORP. • Milwaukee 12, Wis.

96

KINNEAR *Rolling Doors*

On truck bodies *or* buildings, Kinnear Doors are efficient, dependable, economical. Steel-slat curtain coils upward, out of way. Any size; motor operation if desired. Write for details.

THE Kinnear Manufacturing Company
2100-20 Fields Avenue, Columbus 16, Ohio

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Trade Mark Reg. U.S. Pat. Office

MONKEY LINKS

Fit all types of Tire Chains.
Made in 5 sizes.
Order them today.

FLOWER CITY SPECIALTY CO.
Rochester, N. Y.

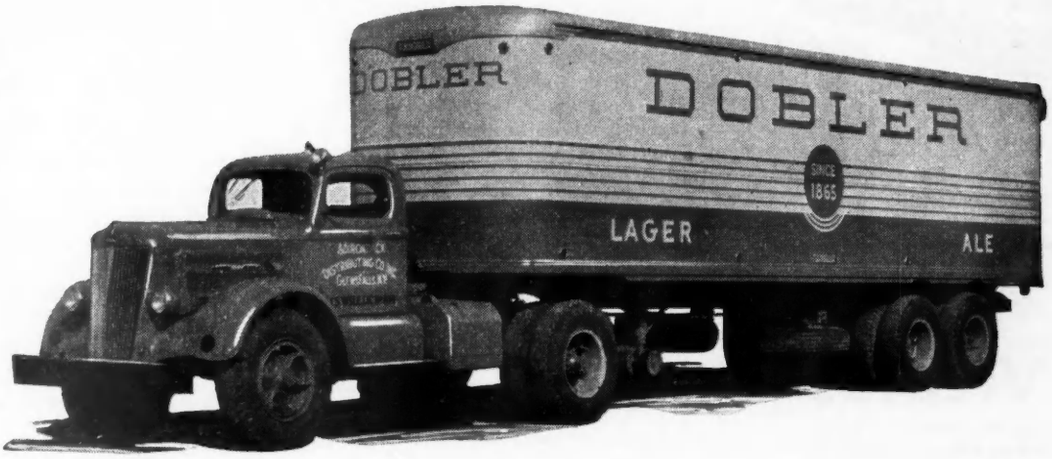
JOYCE LIFTS & JACKS

Single and 2-Post Lifts for all types cars, trucks and buses. New ultra-modern design; simplified installation; level, clear floors; air or electric power. Also Liftmaster Hydraulic Jacks—forged steel construction. *Ask for Bulletins.*

THE JOYCE-CRIDLAND CO., DAYTON 3, OHIO

A LOAD BEHIND IS A TRIP AHEAD

HOLD THE LINE ON OPERATING COSTS WITH...



KINGHAM TRAILERS

In these muddled economic times of soaring costs, operators of Kingham Universal Trailers have a big competitive advantage. That's because the inherent structural stability, rugged design and tough materials engineered into Kingham Trailers give prolonged endurance — trouble free service — that keeps operating costs to the bare minimum.

Kingham Universal trailers are custom-built for their specific duty, a unique Kingham idea that saves you money from the start — Write or wire for location of your nearest Kingham Dealer.

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SNYDER — THE TANK THAT MADE TRUCK OPERATION SAFE & PROFITABLE
MAXIMUM FIRE HAZARD PROTECTION — LESS REFUELING, FASTER, LONG SERVICE RUNS

SNYDER SADDLE TANK CAPACITY 75 TO 125 GALS.

SNYDER SAFETY TANKS

were born when Truck Transportation struggled as an infant industry. SNYDER progressive engineering research continually uncovering exclusive improvements (patents No. 218-1772—2273737 others pending) leads Truck Transportation into BIG BUSINESS, improvements available only in SNYDER SAFETY TANKS . . . U. L. approved.

WHEN YOU BUY A TANK—BUY A SNYDER TANK— AND YOU BUY THE BEST.

SNYDER CYLINDER TANK CAPACITY 28 TO 71 GALS.

For Catalog and Address of Your Nearest Distributor, Write:

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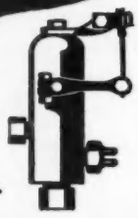
P. O. Box 14, Buffalo 5, N. Y.
SNYDER TANK CORPORATION P. O. Box 2390, Birmingham, Ala.

HYDRAULOCK
THE standard BRAKE LOCK



Pull Out Dash Control.
Step On Brake Pedal.
Your Brakes Are Locked!
Write for information.

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Spray-Painting Equipment — Spray Booths — Canopy Exhaust Systems — Exhaust Fans — Air Compressors — Hose and Hose Connections — Oil Guns

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TELL YOUR STORY
DAY AND NIGHT
With Quixign's Lettering Method

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- **Permanent . . . Promote Safety**
- **Eliminates truck tie-ups**
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Wherever your trucks roll they'll attract and sell.

Write today for full particulars.

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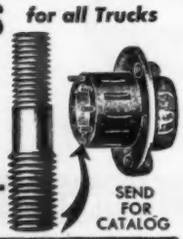
OVERSIZE
REAR WHEEL STUDS *for all Trucks*

Order from Your Jobber

CHAMP-ITEMS



CHAMP-ITEMS, Inc.
6191 Maple Ave.
St. Louis 14, Mo.

SEND FOR CATALOG

CCJ Newscast

(CONTINUED FROM PAGE 248)

CHEVROLET ALL-TIME HIGH

For the second consecutive month, Chevrolet truck sales hit a new high, with 29,701 sold during November. This figure was 241 units higher than the previous all-time record set in October. These figures represent sales in the United States by dealers to consumers.

SURVEYS, INC.

After a 15-year study of job elements and personnel qualifications for matching man and job, under sponsorship of the National Institute of Vocational Research, Inc., Dr. Keith Van Allyn has formed a new company to be known as Surveys, Inc. The company will make available placement techniques, training services, job evaluation methods and special economic surveys. The address is P. O. Box 721, Palo Alto, Cal.

GRANGE HIGHWAY PROGRAM

In its annual meeting at Columbus, Ohio, recently, the National Grange:

(1) Endorsed long-range highway planning by the states but asked direct highway-user participation;

(2) Reaffirmed its position calling for repeal of the Federal automotive excise taxes;

(3) Opposed Federal aid grants for toll roads;

(4) Again advocated passage of uniform state vehicle laws;

(5) Called for passage of anti-diversion amendments in states which have not already thus protected highway user taxes from non-road use;

(6) Urged that local Grange committees be set up to work with local officials on sound rural-road planning.

Mack to Spend $10 Million

Mack Trucks, Inc., has filed with SEC a revised statement proposing public sale of 150,000 shares of unissued common stock. Proceeds realized from the sale will be applied to payment of 1.5 per cent short term bank notes now outstanding in the amount of $4 million and the balance used for general corporation purposes, according to C. T. Ruhf, president. He added that Mack plans to spend approximately $10 million over the next two or three years for new machinery and equipment, new tooling for model changes, new buildings, modernization of existing buildings and rearrangement of facilities.

TRUCK SPECIALISTS CLUBS

J. D. Ball, director of truck and fleet sales, Ford Motor Co. announced recently that many truck clubs were being formed by truck specialists in Ford dealerships, giving impetus to the advancement of postwar truck transportation.

In these clubs, managers and other key men in dealerships, pool their knowledge and experience to solve problems in the industry and pave the way for more extensive and efficient truck transportation.

SEAT PRICES DOWN

Reversing the nation-wide trend of rising prices, the Monroe Auto Equipment Co. has announced reductions in its easy-ride truck seat prices ranging from 24 to 41 per cent.

(TURN TO PAGE 252, PLEASE)

THE COMPLETE LINE that Completely Satisfies

Since 1906
The **Fitzgerald Mfg. Co.**
Torrington, Connecticut

Fitzgerald
GASKETS

CRESCENT
Wiry Joe
AUTOMOTIVE CABLE
Manufactured by
THE CRESCENT COMPANY, Inc.
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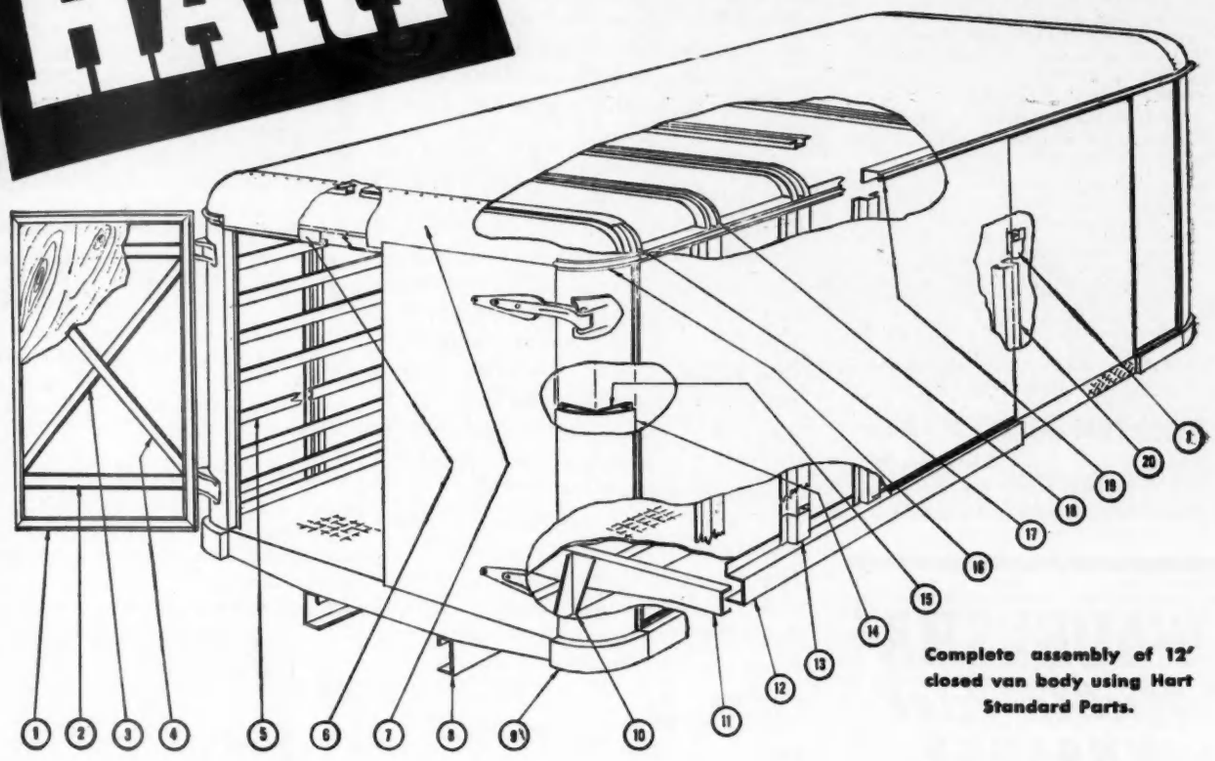
✓CHECK THE WIRE ON EVERY JOB

HART

SUPPLIES ALL PARTS FOR COMPLETE TRUCK BODY



Complete assembly of 12' closed van body using Hart Standard Parts.

HART PARTS USED IN ILLUSTRATION

1	Door Framing, Z Section	4007
2	Door Hinge Mounting Channel	4006
3	Door Skin Frame Section, Inner	4008
4	Door Skin Frame Section, Outer	4009
5	Liner Slat	LS-601
6	Door Header	2502
7	Roof Cap	593
8	6" Sub Sill	SS-2206
9	Rub Rail Corner	RR-1118-A
10	Cross Sill Bracket	CS-2-B
11	Tapered Cross Sill	CS-2215
12	Rub Rail	RR-1135
13	Channel Post	1104
14	Corner Post	CP-1125
15	Corner Post Insert	I-1126
16	Rub Rail Corner	RR-1109-A
17	Roof Bow Reinforced	1003-R-93¼
18	Roof Bow	1003-93¼
19	Rub Rail & Lintel	TR-1124
20	Door Posts	DP-1138

NOW — you can obtain from a single source, Hart Pressed Steel Corp., any and all standard parts to build any type body! Here is the only complete truck body service supplying any quantity of parts, roof caps, windshield and cab roof assemblies, fenders, etc.

Hart standard parts are accurately die formed from HIGH STRENGTH STEEL! Permits easy, labor saving assembly; Gives greater pay load capacity in body construction; longer truck life. Immediate delivery of replacement parts for quick, easy repair!

BUILD TO-ANY DESIGN USING HART PARTS

Individual body design can be met by the variety of Hart Parts. Units have uniformity, too, though built in different sections of the country.

HART PRESSED STEEL CORP.
ELKHART, INDIANA

. . . . . THE COMPLETE TRUCK BODY SERVICE

HAVING GLASS TROUBLE?

We can solve your problems with hard to break, shatter-resistant PLEXIGLAS*, the clear plastic which is becoming increasingly popular for truck and car doors. It will last the life of the vehicle when properly handled.

The use of PLEXIGLAS in motor vehicle glazing has been permitted in some states and should be checked with your state inspector.

Year	Make	Net Price
41-47	Ford Door	$8.45
41-47	Chev. Door	7.85
40-47	Dodge Door	7.85
37-47	(EH) Mack Door	10.19
37-47	LFT Mack Door	12.45
41-47	White Door	8.45
39-47	G.M.C.	7.85
41-46	Studebaker	5.40
37-47	International	8.83

Others $2.75 to $12.50. Prices on request.

Terms C.O.D. or cash with order, F.O.B. Aberdeen

ABERDEEN AUTO PARTS

Box 283-C Aberdeen, Md.

Phone Aberdeen 258

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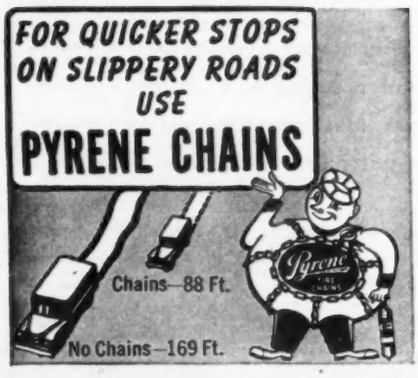
WAUKESHA *Multi-Fuel* ENGINES

DIESEL OIL
GASOLINE
BUTANE

ALL LIQUID OR GASEOUS FUELS

FOR QUICKER STOPS ON SLIPPERY ROADS USE PYRENE CHAINS



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Costs less than hand lettering. Does not tie up equipment.

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Can reproduce any art work.

Prompt Delivery

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4101 East 100 St. Cleveland 5, Ohio

Timely Tips on Battery Care

The winter months may produce many battery failures in the fleet field, and sometimes the fleetman is tempted to blame the battery itself, the manufacturer or his dealer. Before jumping to hasty conclusions he should consider the care he has given the unit in service.

In nearly every case a defective battery can be traced directly to the poor maintenance or faulty operation. The reliable manufacturer has developed the unit after extreme experimentation, has guaranteed it for a stated period and is confident the operator will experience that amount of service from it. However, if normal life is to be expected from the unit, the fleetman must observe the following points religiously.

1. Examine the battery for leaks, cracks and test for charge frequently. This is especially important during cold weather because even a fully charged battery has only 40 per cent of its energy available at zero temperature.

2. Keep battery cables tight and clean. Corroded, frayed or broken cables account for many unnecessary battery failures.

3. Keep the generator in proper working order so that the unit will be able to furnish sufficient current to keep the battery charged.

4. Keep the ignition system in proper repair in order to save using the starter excessively. Spark plugs should be cleaned, set with proper gap and should have wires checked for electrical leakage as a guarantee of proper spark. Distributor points that are pitted or burned will also make excessive use of the starter necessary.

5. Change engine and transmission oil before cold weather. Two and one-half times as much energy is required to turn the engine over at zero temperature than at 80 deg. F. with SAE 20 oil.

6. Insist that drivers disengage the clutch when using the starter so that the battery will not have to turn the gears in the transmission.

7. Make a practice of turning off lights and other electrical units when the starter is used so full battery capacity may be used to turn the starter.

(TURN TO PAGE 254, PLEASE)

Is it *Air* YOU WANT?

—then write for BULLETIN C-6 *Illustrating and describing* CURTIS AIR COMPRESSORS • AUTO LIFTS • CAR WASHERS

CURTIS PNEUMATIC MACHINERY DIVISION
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Revolutionary NEW washing method for Automotive and Industrial Cleaning.

A real money-saver and money-maker.

Write for further information.

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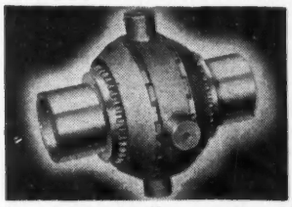

Provides greater traction, greater driving safety, less tire wear. Easily installed in your truck axle.

DETROIT AUTOMOTIVE PRODUCTS CORP.
8701 Grinnell Ave. Detroit 13, Michigan

CRACKED BLOCKS?

SAVE cracked BLOCKS and HEADS with ZO-TITE Blocksaver. Either in or out of chassis.

This new metallic powder treatment repairs cracks with a HARD, METALLIC, CHEMICAL-WELD. Once set, will last forever. Functions safely with anti-freeze. (Will not work on radiators) Test it on a tough job. Write for free sample on your letterhead.

Sold by jobbers.

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GROTE Manufacturing Company, Inc. Bellevue, Ky.
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How to Expedite FOUR Jobs With ONE Material!

When it comes time to figure costs, more and more fleet operators are discovering that these four day-in, day-out shop jobs:—

- Degreasing parts before repair
- Cleaning cooling systems
- Steam-cleaning motors and chassis
- Washing floors and work pits

are done faster and easier, with important savings in time and money, if the cleaning material is

Oakite Penetrant

This water-soluble Oakite detergent, used in small concentrations, packs plenty of cleaning power . . . wets, penetrates and breaks up heavy deposits of oil, grease and dirt in double-quick time and with amazing thoroughness! Non-flammable, easy-to-use, this all-purpose cleaner has been specified by leading fleet operators for many years. Bought in bulk, it builds cash benefits in your service operations. Investigate it TODAY!

36-Page Service Booklet FREE!

For helpful hints on speeding these four recurring tasks — plus many other in-shop cleaning chores—get your FREE copy of the New Oakite Automotive Manual. Contains shop-tested tips for faster cleaning of brake shoes before relining . . . reconditioning clogged radiators . . . washing car and truck bodies. Your local Oakite Representative has your copy, or write us direct for one. No obligation.

OAKITE PRODUCTS, INC., 280 Thames St., NEW YORK 6, N. Y.
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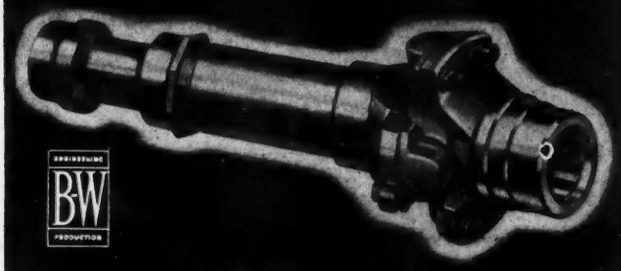
Specialized Industrial Cleaning
MATERIALS • METHODS • SERVICE

THE LARGEST CAPACITY TRUCK *Universal* JOINT
Now Available in Regular Production



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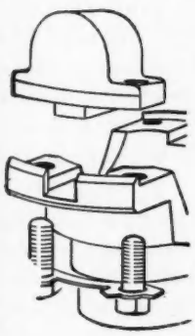
Roller Bearing
UNIVERSAL JOINTS
For Cars · Trucks · Busses and Industrial Equipment

You can help avoid power transmission line breakdowns — and having your trucks laid up for repairs — by using these MECHANICS *Largest Capacity* Roller Bearing UNIVERSAL JOINTS. They drive through integral keys — instead of bolts. Have greater angularity. Need no companion flanges. Can be removed and replaced — on the road — in fifteen minutes — with a wrench and hammer. Write for our new catalog which shows the advantages of MECHANICS Roller Bearing UNIVERSAL JOINTS and PROPELLER SHAFTS.



Let our engineers show you how MECHANICS close-coupled Roller Bearing UNIVERSAL JOINTS conserve space and compensate for offset shafts, in your new and improved models.

Our new catalog — showing the complete line of MECHANICS Roller Bearing UNIVERSAL JOINTS — will be sent to manufacturers upon request.

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Borg-Warner • 2032 Harrison Ave., Rockford, Ill.

AIR-O-MATIC POWER STEER CO.
2180 Lee Road • • • • Cleveland 18, Ohio

Easier and Safer TRUCK MANEUVERABILITY

A self-contained unit of extremely simple construction, yet exceptionally effective and precise in operation. No buttons or levers are required to operate the Air-O-Matic Power Steer—it works automatically, helping only as the operator of the vehicle leads the steering wheel in either direction. It automatically stops helping when the operator stops leading the steering wheel. Details and technical information available on request.

Battery Care

(CONTINUED FROM PAGE 252)

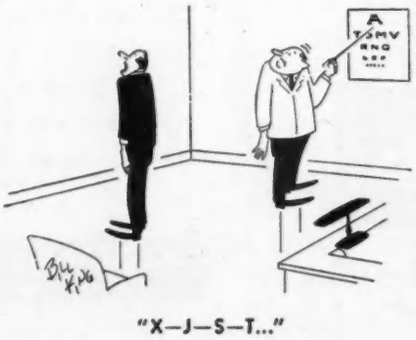
8. Keep the battery water 3/8 in. over the top of the separator. Only approved water or electrolyte should be used when additions are necessary.

9. Install proper size and capacity batteries and use only those of reputable manufacturers, as "cheap" batteries are not economical in the long run.

10. Insist upon the use of proper testing instruments and require that the mechanic use them correctly. Shop electrical meters for battery testing should be accurate within 2 per cent over the entire scale range.

11. Keep battery records as they provide valuable information on the life history. A series of hydrometer readings, with dates is extremely important in determining if the electrical system is self-maintaining under average operating conditions.

12. Use the water loss system to warn of impending trouble. If one cell requires more water than the others, it is a sign that the liquid has been lost through sloppage around the vent plugs, seepage through cracks in the sealing compound, or leakage from a broken battery container. Finding the cause and eliminating it may save a delay and a battery replacement.



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THE ORIGINAL AND PROVEN
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OIL FILTER ELEMENTS
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HARD FACED VALVES
Your used valves rebuilt
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better performance and economy.
LONGER SERVICE
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EXHAUST • INTAKE • SODIUM-COOLED
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GASOLINE ELECTRIC GENERATING SETS
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the trademark "Timken" is on every tapered roller bearing you buy. Timken bearings are first choice with truck and trailer manufacturers. Remember—for the best in bearings—
IT'S "TIMKEN"
Trademark Reg. U. S. Pat. Off.
The Timken Roller Bearing Company
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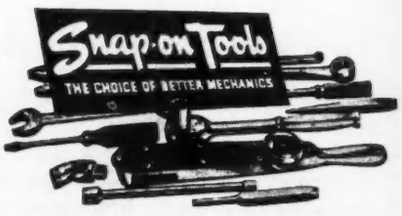

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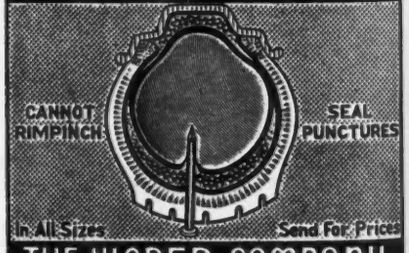
8026-A 28th AVE. KENOSHA, WIS.

WABER "Double Seal" TUBES


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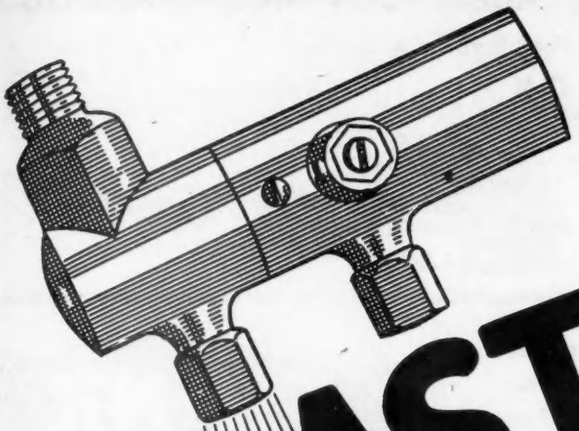
THE WABER COMPANY
1120 S. MICHIGAN AVE., CHICAGO 5, ILL.



BLAST air brake moisture

BE sure you can stop . . . Install MOIS-CHUR-MATIC on your fleet. Keeps air brake systems dry . . . leaves no moisture to freeze. In more and more busses, trucks, transportation systems MOIS-CHUR-MATIC is blasting out-damaging, dangerous water and sludge that collect in air brake lines.

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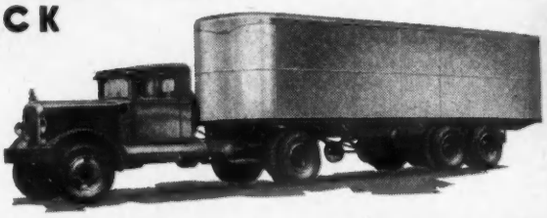

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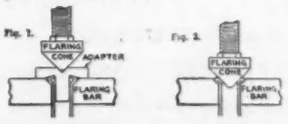
Double-Flaring Tool

. . . for steel and other metal tubing

● Ideal for brake, gas and oil line work. Overcomes tendency of welded steel tubing to crack when flared with ordinary flaring tool. First, tubing is belled, Fig. 1. Then flared in conventional manner, Fig. 2.

No. 93-FB Double-Flaring Tool complete in metal kit.



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CCJ Newscast

(CONTINUED FROM PAGE 248)

BUREAU CLARIFIES STAND ON PETROLEUM ANTIFREEZE

On Nov. 28, 1947, the National Bureau of Standards issued a bulletin entitled "Harmful Antifreeze May Seriously Damage Automobiles This Winter." The report, which contained certain derogatory information concerning petroleum base antifreeze, was carried in part on page 146 of the December issue of COMMERCIAL CAR JOURNAL. On Dec. 8 the Bureau issued the following supplementary bulletin which is quoted in full:

"The attention of the Bureau has been called to possible misinterpretations with respect to the nature and qualities of petroleum base anti-freezes. The present statement is intended to correct any erroneous impressions that may have arisen therein and constitutes an amplification on petroleum base anti-freezes.

"Petroleum base anti-freezes are classed, in general, as harmful because such materials attack radiator hose made from natural or reclaimed rubber and because of the effects which result from this attack. However, if the anti-freeze material is properly and highly refined and is used with a radiator hose of suitably selected synthetic rubber, the hose is not attacked. Properly and highly refined materials are those which are composed primarily of aliphatic and naphthenic hydrocarbons and which contain no aromatics or olefins.

"Petroleum base anti-freezes, if properly refined, are satisfactory in the following respects:

1. The anti-freeze does not "creep."
2. It provides anti-freeze protection to a temperature of —40°F or lower.
3. It does not corrode metal, either in the engine or radiator.
4. The anti-freeze does not produce obnoxious fumes.
5. Pure petroleum base anti-freezes contain no harmful inorganic salts."

"Say, boss, couldn't you stop just a minute to fix this flat!"

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hand or power hydraulic control
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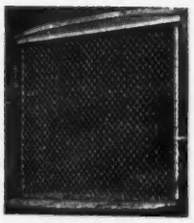

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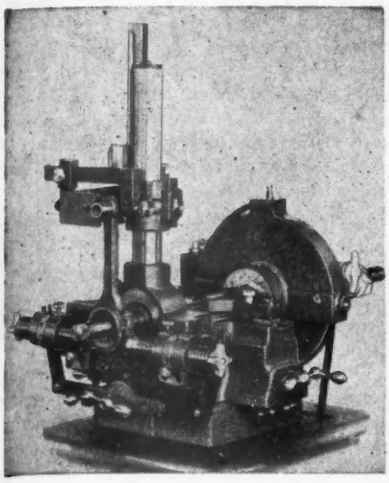
NEW TOBIN-ARP Con-Rod Attachment



This NEW Con-Rod attachment mounted on our SB Machine gives you complete bearing finish service with minimum investment. Handles all shell bearings. Bores individual bearing shells to any predetermined size. Handles undersized and special sized bearings. Provides a mirror finish in less than two minutes.

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TOBIN-ARP MFG. CO.

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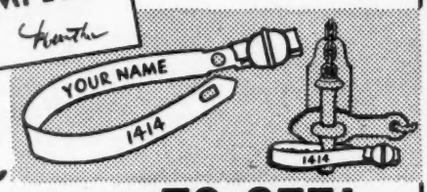

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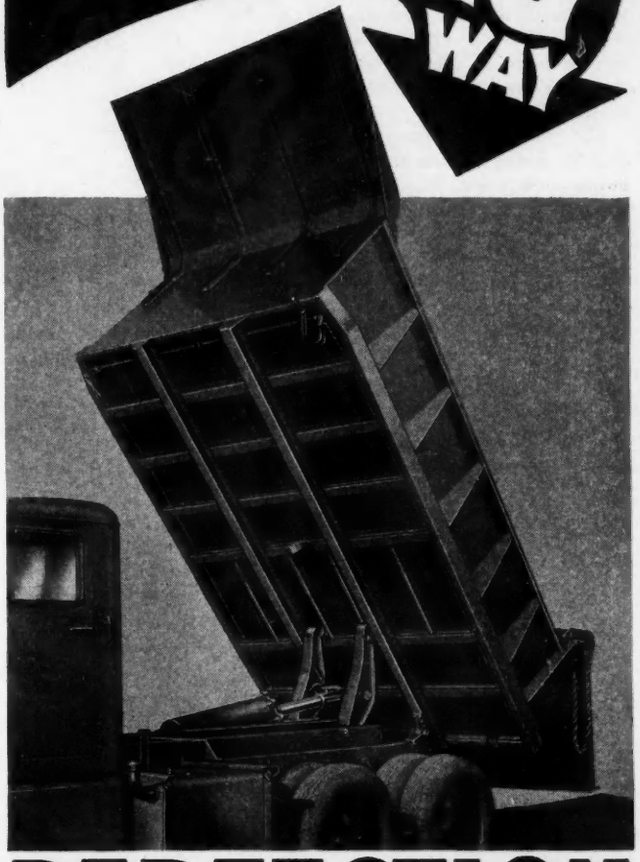

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FOR ANY TRUCK STANDARD or SPECIAL UNITS IN ALL SIZES · FOR ANY USE

New Products

(CONTINUED FROM PAGE 150)

P142. New Tire Tread

A new "sandpaper" tread, especially for winter driving, is now being offered by The B. F. Goodrich Co., to be installed by its Durecap method of recapping tires.

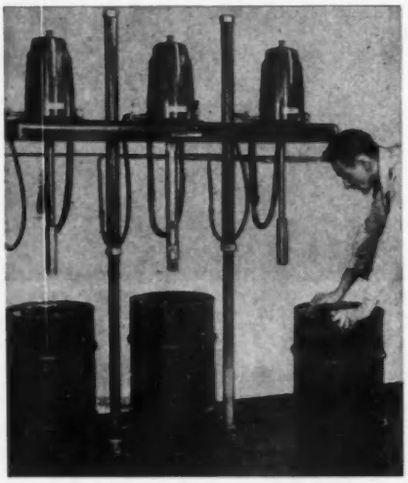
The "sandpaper" tread grips on ice and snow, and is made possible by mixing coarse, abrasive particles throughout the tread rubber, so that the gripping action continues even as the tread is worn down in service.

The company recommends the treads only for winter driving and says that many owners use them for this purpose and when the extremely slippery weather is over switch to their regular tires. Both passenger and truck tires may be provided with the special treads.

Use Free Postcard for More Details.

P143. Hoist Alemiter

The Triple Pump Hoist Alemiter, designed by Stewart Warner Corp., Indianapolis, raises three air-operated pumps (one chassis and two gear) to clear tops of 100-lb. drums by merely opening an air control valve when lubricant drums become empty. Sturdy one-piece cover helps keep



lubricant free from dirt. New system of changing drums helps keep grease off floor, hands and clothes.

Use Free Postcard For More Details.

P144. Electric Hoists

The Ford Chain Block Division of American Chain & Cable Co., Inc., York, Pa., has just announced a new line of electric hoists named "Whippet."

Rugged construction and low operating costs make this hoist adaptable for many heavy duty lifting jobs. Capacities range from 250 lb. to 2000 lb. They can be furnished with trolleys, either parallel or cross mounted. In addition, they can be furnished with hook suspension or for rigid or bolt suspension. The standard lift of this sleek, smooth running, wire rope electric hoist is 12 ft., however, 20-ft lift can be furnished when specified.

Use Free Postcard For More Details.

P145. Loadometer

The new Hi-Way loadometer developed by Black & Decker Mfg., Towson, Md., is said to be accurate, portable, practical and dependable. Providing a quick means of weighing trucks, trailers and tractors, the loadometer is said to be accurate within 1 per cent. The new model features improved

visibility of weight-recording counter, free from obstruction and at convenient height as well as ample platform size for the largest tires.

Use Free Postcard for More Details.

P146. Tire Remover

A new development of the Branisk Mfg. Co., Inc., Fargo, N. D., is the "Big Hand" truck tire remover. The device grips the tire rim or wheels, turns them and holds them, eliminating manual handling.

Powered by air pressure from the regular line, the unit takes all sizes of rims from 15 to 24 in. in diameter, cross sections up to 14.00.

The Big Hand grips the wheel or rim by means of three prongs forced against the rim. Manipulation of lift valve raises or lowers the tire, holding it free to turn at any angle by means of the positioning wheel. Face of tire and rim is completely unobstructed.

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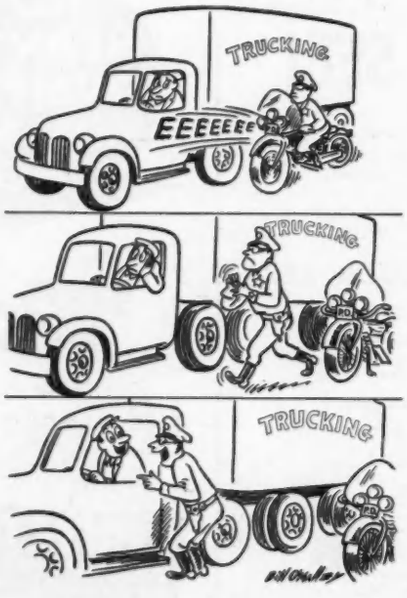


"May I use your phone?"

P147. Gas Welding Flux

The Air Reduction Sales Co., New York, has recently announced the availability of a new flux for the oxyacetylene welding of stainless steels and high chromium bearing alloys. The flux has been designated as Airco Formula No. 34.

The new flux was specifically compounded to dissolve the chromium oxides encountered in welding stainless steel and other high chromium bearing alloys. Application by painting the immediate and surrounding surfaces to be welded protects the molten metal from the air thus preventing oxidation.

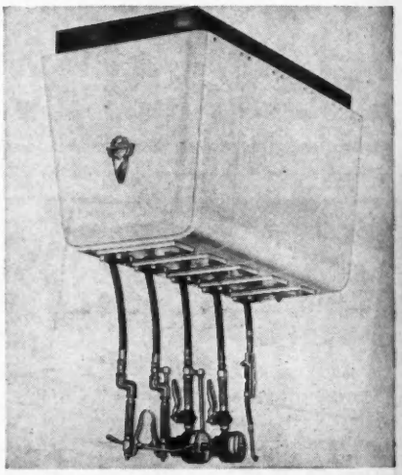
Use Free Postcard For More Details.

P148. Lincoln Lubreels

Lincoln Engineering Co., St. Louis, Mo., is now in production of new air-operated Ceiling-Type Lubreels.

These air-operated, automatic retracting Lubreels are available in individual units for each type of service, they can be assembled and mounted in any combination desired.

Hose automatically retracted when extended to full length—may also be retracted from any point in the extendible range by pulling Air-Valve Trip Rod. Re-



winding speed is uniform and accurately controlled. There is no tension or pull-back on hose when extended for use.

Use Free Postcard For More Details.

P149. Arc Welder

The Wilson Welder and Metals Co., Inc., New York, has announced the availability of the new Wilson "Hornet" 36A motor generator arc welding machine.

The new "Hornet" 36A of compact design and available in 200, 300 and 400 ampere models, is a heavy duty machine with simple control of current that is easy to adjust and pre-set accurately. It is smaller in size and weighs one-third less than the previous "Hornet" models—factors which save floor space and provide easier movement. This machine is designed for either 220 or 440 volts with no change in relays or additional wires being required for voltage re-connection.

Use Free Postcard For More Details.

END

(Please resume your reading on P. 64)